ACADEMIC BLOGGING AT NYU

As the launch of a University-wide blog service nears, four NYU faculty members describe how they have used blogs to enhance and extend their scholarship and instruction. Read More >>

CHEMISTRY IN THE VIRTUAL LABORATORY

Two researchers at NYU’s Department of Chemistry review how high performance computing and the tools of the virtual laboratory have facilitated their recent nanoscience research. Read More >>
Welcome to the Spring/Summer 2007 Connect!

As ITS prepares to roll out a University-wide weblog service (see p. 6), this issue of Connect spotlights that technology, with several articles from NYU faculty members that describe how they are using blogs to build community and extend their scholarship and pedagogy. In addition, the issue features fascinating articles on: recent research in chemistry, art history education, and environmental injustice; a pilot test of the ALEX learning management system; an update on the ITS Instructional Technology Fellowship; important data security recommendations; the RefWorks research tool; news about the NYURoam wireless network and NYU’s Meeting Maker calendaring software; the introduction of an online marketplace from NYU Purchasing Services; and more.

On a separate note, I am pleased to announce that the Spring/Summer 2006 edition of Connect received the first-place award in the Printed Computing Newsletter category of the Association for Computing Machinery Special Interest Group on University and College Computing Services’ Communication Awards. Many thanks and congratulations to our contributors for helping Connect achieve this honor!

- Kate Monahan

About Connect

Connect: Information Technology at NYU is edited and published by Information Technology Services (ITS). Its scope includes information about computing, networking, and telecommunications across NYU’s various schools, departments, and administrative units, as well as developments in information technology outside the University.

Print copies of Connect are available at the ITS Faculty Technology Services Center, the ITS computer labs, the ITS Client Services Center, the NYU Welcome Center, and most graduate school offices. Copies are mailed to full-time University faculty, staff, administrators, and researchers, based on mailing lists administered by the Human Resources Division. Current and past issues of Connect are also available on the Web at www.nyu.edu/its/pubs/connect.

If you are a full-time faculty member and do not receive a copy, please notify your dean’s office; full-time staff should notify their human resources representative. If you are not among these groups but would like a free subscription, please send an email to its.connect@nyu.edu.

We welcome your comments about the articles in this issue, as well as suggestions for future issues. Contributions are invited for consideration by the editor.

Opinions expressed in the articles in this publication are those of the authors and not necessarily those of Information Technology Services or of New York University.

Editor  
Kate Monahan • kate.monahan@nyu.edu

Associate Editors  
Jill Hochberg • jill.hochberg@nyu.edu  
Keith Allison • keith.allison@nyu.edu

Contributors  
Carlo Cernivani  
Chaoyan Dong  
Ethan Ehrenberg  
Haidy Geismar  
Jodi Goldberg  
Christian Grewell  
Robin Hayes  
Barbara Kirshenblatt-Gimblett  
Raymond Lau  
Kate Monahan  
Nicola Monat-Jacobs  
Zvia Naphtali  
Christopher Penido  
Carlos Restrepo  
Steve Rock  
Gregory Schnese  
Clay Shirky  
Nadaleen Tempelman-Kluit  
Mark Tuckerman  
Siva Vaidyanathan  
Max Whitney  
Jie Zhang  
Rae Zimmerman

Thanks also to...  

www.nyu.edu/its/pubs/connect/  
Copyright © 2007 New York University
### Table of Contents • Spring/Summer 2007

**INSTRUCTIONAL & FACULTY TECHNOLOGY**
- **An Introduction to Blogs & Blogging**
  By Clay Shirky & Kate Monahan ......................................................... 2
- **Academic Blogging: The Material World Blog, Blogging to Build Class Community, Sivacry.net**
  By Haidy Geismar, Barbara Kirshenblatt-Gimblett & Siva Vaidhyanathan ........................................ 3-5
- **ALEX: Powered by Sakai, Guided by Faculty**
  By Max Whitney .................................................................................. 10
- **Case Study in Instructional Technology: The Spring 2007 Instructional Technology Fellowship**
  By Ethan Ehrenberg & Chaoyan Dong .................................................. 18

**SUPERCOMPUTING AT NYU**
- **Organic Meets Inorganic In Silico: Chemistry in the “Virtual Laboratory”**
  By Mark Tuckerman, with Robin Hayes .............................................. 7

**FROM THE NYU LIBRARIES**
- **RefWorks: Beyond Bibliographies**
  By Nadaleen Tempelman-Kluit ............................................................ 13

**COMPUTER & NETWORK SECURITY**
- **Data Handling: With Ease Comes Responsibility**
  By Christopher Penido ........................................................................... 15

**SOCIAL SCIENCES, STATISTICS & MAPPING**
- **Using GIS to Examine Environmental Injustice in the South Bronx: The Case of Waste Transfer Stations**
  By Zvia Segal Naphtali, Carlos Restrepo & Rae Zimmerman .................... 23

**WIRELESS COMPUTING**
- **Roaming into the Future: The Ever-Evolving NYUroam Wireless Network**
  By Carlo Cernivani ................................................................................ 29

**ADMINISTRATIVE COMPUTING**
- **i-Buy: Purchasing Services’ New Shopping Marketplace**
  By Kate Monahan .................................................................................... 31
- **Administrative Computing News: Webgrade & JEMS**
  By Raymond Lau & Steve Rock ............................................................. inside back cover

**ITS NEWS FOR THE NYU COMMUNITY**
- **ITS Blog & Wiki Update**
  By Jodi Goldberg & Nicola Monat-Jacobs ............................................. 6
- **NYU Meeting Maker: A Brief Look at Version 8.6**
  By Christian Grewell & Jie Zhang .......................................................... 33

**ARTS TECHNOLOGY**
- **Insight & Art History Learning at NYU**
  By Gregory Schnese ............................................................................... 35
If you use the Internet with any regularity, you’re probably already familiar with weblogs (or blogs). In fact, given the ever-skyrocketing popularity of blogs, you may already be a regular reader of one or more blogs, if not a blogger yourself. For the uninitiated, a blog is a website consisting of separate, date-stamped entries, known as posts. These are usually text, but there are also photo blogs, audio blogs, and video blogs. Blogs are usually organized with the most recent post at the top of the page, and tend toward the personal voice.

Since their inception in the mid-1990s, the number of blogs has exploded. There are now tens of millions of them, written for a huge variety of reasons and covering an equally huge variety of subjects: from the online diaries of bored high school students, to the musings of CEOs, to a myriad of social and technical subjects, as well as simple personal expression. Their scope has expanded over the years to encompass major news sources, entertainment, academics, and every imaginable niche topic, from Engadget.com, a blog about gadgets and consumer electronics, to DailyKos.com, a popular political blog, to Boingboing.net, described as a “Cabinet of Wonder,” whose repertoire resists easy description. (At the time of this writing, for instance, the day’s offerings included posts on controversial art, copyright law, fires in California, creationism, and clothing made from recycled plastic bags.)

A typical blog consists of time-stamped posts containing a title or headline, the body of the post, a category assignment and/or tags (keywords) relating to the content of the post, a permalink (the permanent URL of the full post), comment forms for reader feedback, and, often, a list of “trackbacks,” or other websites that link to the post. Frequently, blogs also enable readers to subscribe to a feed, which automatically sends new entries to the subscriber’s news reader. These feeds (usually available from an “RSS” or “XML” button on the site) enable the subscriber to keep up to date on new entries from various blogs without having to visit the individual sites.

A 2006 study of blogging in the United States by the Pew Internet & American Life Project found that 12 million adults kept blogs, while 57 million adults (39% of U.S. Internet users) read them. They also found that men and women used blogs equally, and 46% of bloggers were over the age of 30.\(^1\)

On a worldwide scale, Technorati, a popular search engine for blogs, tracked 74.9 million blogs.

\(^1\) www.pewinternet.org/PPF/r/186/report_display.asp
blogs at the time of this writing. According to their data, more than 175,000 new blogs are created every day, and bloggers are updating their sites with an average of 1.6 million new posts a day.²

Given these numbers, it is not surprising that tools to help readers parse all this information, both from blogs and from other websites, have emerged. Filter-style blogs like Metafilter.com, blog-like social sites

---

2. [http://technorati.com/about/](http://technorati.com/about/)

---

**Blogging to Build Class Community**

By Barbara Kirshenblatt-Gimblett • bkg@nyu.edu

In April 2004, I approached ITS with a request. I was intrigued by the blogging phenomenon and wanted to explore how I might use a blog to transform my steam room conversations with my colleague Diana Taylor on politics and performance into something more substantial. But first, I needed to learn how to blog. I went to ITS, as I did in 1995, when I approached ITS Student Technology Services Director Vincent Doogan with what I thought was a pipe dream: a course website. “No problem,” he said, and sent me to ITS eServices’ staff member Joseph Hargitai, who taught me to write HTML. This time, the ITS Web Team explained that NYU had not yet established an official blogging service, but that they would set me up with an account for the Moveable Type service they were testing, which offered more options than such popular blogging software services as Blogger and LiveJournal. I wanted to learn to blog like a real blogger, to feel what it was like, so I requested permission to create a personal blog, which I entitled Forklore and dedicated to two of my passions, food and museums.

Since then, I have created a blog for every course I teach, as well as for two projects: a workspace for creating the core exhibition for the Museum of the History of Polish Jews and a virtual roundtable on the Jewish Children’s Museum in Crown Heights, an edited version of which will appear in *Material Religion* in fall 2007. The roundtable is an outgrowth of the Working Group on Jews, Media, and Religion, which I co-convene with Jeffrey Shandler, at NYU’s Center for Religion and Media. With the expert assistance of Tal Halpern and Tiphaine Rabaux at NYU’s Digital Studio, the Working Group has also created MOIDIYA, an online resource for scholars, teachers, and students. MOIDIYA ([http://modiya.nyu.edu](http://modiya.nyu.edu)) received a 2006 Slingshot Award ([www.2164.net/](http://www.2164.net/)) as one of the fifty most creative sources for innovation in Jewish life from the Charles and Andrea Bronfman Foundation. MOIDIYA was also featured on Judaïques Cultures, which declared: ‘Our very favorite [web portal] is Modiya, a site for New York academics and researchers. A high quality link.’¹

A central feature of my pedagogy is to ask students to respond in writing to each week’s reading, post their responses to the blog, and comment on each other’s postings—I comment as well.² The blogs encourage students to model for each other a wide range of responses to the reading, writing styles, and commentary. Collectively, they raise the standards and stakes: they add images and links to their postings and otherwise try to interest their peers in reading what they have written. I then focus class discussion on issues they have raised or missed and refer to specific passages in their postings: the blog is before our eyes, projected on a screen, and we can follow links they have provided to sites that illustrate their postings. Students also post proposals for their research papers; we start workshopping their ideas online and continue in class and during office hours. I particularly value the transparency of the blog and the interaction that starts there and continues face to face.

Before I launched my course blogs, students would email their responses to the class listserv, which made for cluttered inboxes and unpredictable formatting. In contrast, the blog is beautiful and orderly, deliberate and spontaneous. Students get to know each other (and I get to know them) more quickly; those who are shy can shine on the blog and become more comfortable speaking up in class. The blog builds a feeling of community in ways that are more egalitarian than competitive, and best of all, students learn from each other.

---

2. As an example, see the blog for my Tourist Productions course: [www.nyu.edu/classes/bkg/touristblog_07/](http://www.nyu.edu/classes/bkg/touristblog_07/).
like Digg.com and Reddit.com, and social bookmarking sites like del.icio.us are all designed to help the reader filter the interesting and relevant from everything else. Though the mechanisms differ, the common theme for each of these tools is to provide a communal online space where users can propose, post, or bookmark websites or blog entries that they find valuable.

One recent example of this sort of filtering is a project at the NYU Tisch School of the Art's Interactive Telecommunications Program (ITP, where the authors make their home). Robert Faludi, an ITP student, recently launched a project called BlogBlender, which aggregates (or “re-blogs”) the feeds from nearly 100 other student and faculty blogs. This creates a kind of in-house newsletter, and a shared awareness of what other people in the department are thinking about or working on, without creating any additional expense or effort.

In the face of such profusion, you may wonder whether there is any value to launching a new blog. The basic answer is simple—why not? There is no cost to most of the basic blogging tools (though many blogging services also offer for-fee models that include additional features) and the set-up is quick, so you can easily try it out without much difficulty. A more complex question is what to blog? In the early days, every blog was a personal outlet, which could include professional observations in one post and favorite recipes in the next. Over time, though, issues of style and genre have emerged (as they do with every new medium). Now, there are blogs that are explicitly outlets for politics (e.g., Huffington Post, Instapundit), others for academic inquiry (Crooked Timber, Resilience Science), and so on.

Notions of the number of blogs you might publish to have become similarly varied. The original presumption, again from the days of blogs as personal outlets, was that there would be one blog per person, but this too has become more complex. There are people who maintain work and home blogs, and there are many group blogs (indeed, most of the top ten blogs on Technorati’s list of the most popular are now group blogs). So, if you are starting a new blog, you will need to decide which subjects to include and which to exclude, and whether to blog alone or with others.

The Material World Blog
By Haidy Geismar • haidy.geismar@nyu.edu

The Material World Blog (www.materialworldblog.com) was originally conceived as a digital forum to connect faculty and graduate students working in the Departments of Anthropology and Museum Studies at NYU and University College London (UCL). We thought it would be a good way to bring together a research community with shared interests in the material and visual aspects of our social and cultural worlds, and enable them to discuss new books, exhibitions, films, and current events, and share current research projects. Since its inception in October 2006, however, this community has expanded far beyond these two academic departments.

The Material World Blog has a lively group of contributing editors, and on any given day we have readers from all over the world. At last glance, we had visitors from such diverse locations as Australia, Austria, Brazil, Canada, Denmark, Ethiopia, Hungary, India, Iran, Jordan, Korea, New Zealand, Singapore, Slovakia, Slovenia, and Thailand. Our content is also diverse, ranging from discussion of the geo-politics of Google Earth to Brazilian engagements with denim, and providing links to conferences and other events around the world.

The site was set up, and is hosted, by the NYU Web Team, who installed the Moveable Type blogging software for us. Working from a basic template, my Graduate Student Assistant Will Thompson and I, with help from a UCL student, were able to customize the header and structure of the site to reflect our needs. The technical aspects of creating the site were achieved through the same kind of network of collaboration we aim to develop within the site. Within a very short time, and with only the cost of compensating my Student Assistant (generously contributed by NYU’s Department of Anthropology), we were up and running.

Overseeing the Material World Blog has been a great experience in drawing together a community of shared interests and discovering how the Web can expose research to people who are not usually part of university life. In turn, we are gradually drawing in more and more students to write pieces and discuss their projects with one another. We’re actively looking for contributions and hope to keep developing student participation, with the possibility of online symposia and other real-time exchanges in the future.

Continued on p. 6 >>
A Conversation with Siva Vaidhyanathan of Sivacracy.net

Siva Vaidhyanathan is an associate professor of Culture and Communication at NYU’s Steinhardt School of Education, a prolific author, and creator of Sivacracy.net, a popular academic blog that is hosted on the NYU network. He was recently kind enough to speak with Connect about his experiences with and reflections on academic blogging; the following is based on this conversation.

Siva Vaidhyanathan launched Sivacracy.net in late 2003, before the publication of his second book, The Anarchist in the Library: How the Clash between Freedom and Control is Hacking the Real World and Crashing the System. At the time, he conceived of it as a central clearinghouse for managing publicity and announcing media events relating to his new book. Quickly, however, the blog proved useful as a place to publish timely, informal op-eds about news developments in his discipline, keep a running notebook of interesting items and events, and road test ideas that were not yet mature enough for distribution via formal academic venues.

As Vaidhyanathan expanded the scope of his blog, a readership steadily grew up around it, reaching its zenith around the 2004 presidential election, with approximately 15,000 readers per month. (In the current period of relative calm between elections, that number has moderated to approximately 9,000 readers per month, 6,000 of whom Vaidhyanathan perceives as his “core readership.”)

Sivacracy.net has continued to evolve in the four years of its existence. The blog is now generated by an entire team of contributing editors, primarily academics and librarians, with Vaidhyanathan acting as Editor in Chief and a regular contributor. The contributing editors are free to write about any topics of interest to them, though the primary focus is on information technology and politics. This arrangement results in part from Vaidhyanathan’s desire to collaborate with personal and professional colleagues, and in part from the fact that a blog with a significant readership can be time-consuming to maintain. He finds that a team approach diminishes this pressure and brings an engaging diversity of opinion.

This collaborative approach is an increasingly popular model in the blogging community at large. Vaidhyanathan describes how he himself posts items as a guest contributor on other blogs, cites and engages with other bloggers’ posts through his additions to Sivacracy.net, and adds comments directly to other bloggers’ posts. Several of Sivacracy.net’s contributing editors also maintain separate blogs of their own, focused on other topics, and occasionally cross-post items among them. Vaidhyanathan finds that blogs can “build community and conversation about trenchant issues,” and are, in his opinion, an interesting and sometimes important addition to the menu of outlets for academic work.

When asked for his advice to faculty who are considering a blog of their own, Vaidhyanathan tempers the benefits described above with a word of caution regarding the attention they can garner. Each blogger has the opportunity to decide whether to allow the public to add comments to their site; if they do, they may occasionally receive harshly critical feedback, particularly if they write posts on contentious topics. In 2004, Vaidhyanathan experienced a spate of angry, sometimes personal, comments from readers who disagreed with his political views. He eventually felt the need to temporarily disable the comments; when he reopened them, he implemented new restrictions that allowed him to automatically accept comments from “trusted” commenters, and to review comments from unknown commenters before allowing them to appear on the site. This system has proved effective, if somewhat time consuming, and remains in place on the current site.

Despite this potential downside to the attention a public blog can attract, Vaidhyanathan encourages his faculty colleagues to consider that, whether you have a blog or not, it is impossible not to be a public scholar in this day and age. Academic bloggers make an explicit choice to be public, but in our media-driven world, faculty should be aware that any statements made in the classroom or in the course of their academic work could make their way to the public’s eyes and ears. In this light, (and with the awareness that a blog is, in many ways, a publication like any other), some faculty members may feel liberated to experiment with this technology as an extension of their current scholarship.
Class blogs encourage active student involvement through comments and posts, and have the potential to significantly expand discourse both inside and outside the classroom. In the words of J. Bradford Delong, class blogs create “a larger college, an invisible college, of more people to talk to, pointing me to more interesting things. People whose views and opinions I can react to, and who will react to my reasoned and well-thought-out opinions, and to my unreasoned and off-the-cuff ones as well.” In addition, these sites enable convenient and immediate dissemination of information by the faculty member, and create an ongoing archive of discussions related to the class.

In discussing scholarly blogs intended for public consumption, popular blogger Juan R. I. Cole notes that the “ability to speak directly and immediately to the public on matters of one’s expertise, and to bring to bear all one’s skills to affect the public debate, is new and breathtaking.” The blog platform allows flexible, simple dissemination of research and criticism, and immediate feedback from peers, sidestepping the formality and delay of traditional journals and other print publications.

Clay Shirky is a faculty member at the NYU Tisch School of the Arts’ Interactive Telecommunications Program (ITP) who specializes in social computing. Kate Monahan is Editor of Connect: Information Technology at NYU, and a graduate student at ITP.


---

**ITS Blog & Wiki Update**

*By Jodi Goldberg & Nicola Monat-Jacobs • jodi.goldberg@nyu.edu; nicola@nyu.edu*

**Blogs**

In the past few years, blogs have emerged as a major category of Internet web publishing. Blogs enable an individual to create an evolving website and, optionally, allow other members of a community or group to comment on postings. (See “An Introduction to Blogs & Blogging” on p. 2 for more information about blogs.) ITS has recently implemented a dedicated blog server using the enterprise version of Movable Type, the industry’s premiere blogging software. This service has the benefit of being integrated with NYU’s central authentication service, which uses the NYU NetID and password combination. A pilot test of the NYU Blogs service is planned for May 2007 and will be open to faculty and students. It is ITS’ hope that this new service will create a sense of community among students and offer faculty an up-to-date, innovative way of engaging their students and colleagues in discussion.

**Wikis**

ITS is currently exploring the possibility of offering a dedicated wiki service through a variety of pilot tests (see “Case Study in Instructional Technology” on p. 18 for more about wikis). We are also exploring a number of options for how the service might be implemented, and who would be eligible to use it. A core group of NYU instructors is currently participating in an alpha test of wiki functionality, using wikis in their classrooms for teaching and learning during the Spring 2007 semester. Their feedback will be invaluable to ITS in shaping a potential service offering. In addition, ITS has just launched a new wiki tool inside of ALEX, our pilot online learning and collaboration environment. Instructors participating in the ALEX pilot will be able to use wikis that are integrated with the other services that ALEX provides: discussion boards, assignments, document storage, calendaring, email, user management, and more. (For more information about ALEX, see “ALEX: Powered by Sakai, Guided by Faculty” on p. 10.)

For updates on ITS’ blog and wiki service offerings, stay turned to Connect-Direct, ITS’ monthly email newsletter, or check the ITS News website (www.nyu.edu/its/news/).
Organic Meets Inorganic *In Silico*
Chemistry in the “Virtual Laboratory”

By Mark Tuckerman, with Robin Hayes
mark.tuckerman@nyu.edu; robin.hayes@nyu.edu

Chemistry is often referred to as the central science, sharing common “boundaries” with biology, medicine, materials engineering, physics, neural science, geology, and numerous other fields. Diverse problems ranging from the design of novel materials, to the development of new drug compounds, to the construction of a quantum computer all embody at their core a basic chemical description—a specification of a system’s constituent atoms and their interactions. The complexity of today’s research questions, however, has caused the boundaries to blur, and progress on such problems requires an interdisciplinary approach that synthesizes knowledge from different scientific fields.

In this article, we will consider a particular problem in nanoscience that elegantly exemplifies this blurring, namely, the creation of hybrid materials from semiconductors—systems that usually lie within the purview of physics—and simple organic molecules. Such materials can be made sensitive to certain biological environments for sensing in medical applications. They can also be used in molecular electronics, wherein small molecules are sandwiched between source and drain electrodes to make tiny electronic devices. My group in NYU’s Department of Chemistry seeks to understand and guide the design of these materials theoretically, using a computational approach that starts from a fundamental chemical description.

Designing a new material proceeds first via a “creation” phase, in which specific chemical processes are employed to generate the material’s atomic/molecular structure. Following this, a “characterization” stage is needed to validate the final product. In both stages of this design protocol, chemical theory and high performance computing are playing increasingly important roles, providing the rational underpinnings of experimental findings and, with increasing frequency, pointing toward further experiments that lead to new molecular constructs and materials. As an example, the molecular electronics field alluded to above originated with theoretical ideas introduced by the American physicist Robert S. Muliken and advanced in subsequent theoretical papers by Aviram and Ratner.

The development of new theoretical techniques, computational algorithms, and software modules is a driving force in my group that ultimately extends the complexity of the problems we can solve.

Before proceeding to a specific application, let us pause to answer the question: How is theoretical research in chemistry carried out? It is here that the “centrality” of chemistry must give way to the “fundamentality” of physics. A theoretician wants to know where every atom and its electron distribution are at each instant in time during a chemical reaction, so that the dynamical evolution of the chemical bonding pattern can be followed in the greatest possible detail. This can only be accomplished by solving the fundamental motion equations of physics that govern how each atom in the system moves in time from a given starting configuration. In principle, one universal theory—quantum theory—encodes this information for all chemical systems, and all we need to do is select from the periodic table the number of each type of atom to generate the specific system we wish to study.

Indeed, in 1929, the English physicist P. A. M. Dirac said about quantum theory, “The underlying physical laws necessary for the mathematical theory of a large part of physics and the whole of chemistry are thus completely known, and the difficulty is only that the exact solution of these laws leads to equations much too complicated to be soluble.” By combining a few simplifying but well-controlled approximations with modern high performance computing architectures, Dirac’s challenge can be met. The technique now known as *ab initio* molecular dynamics (AIMD) was first introduced by


R. Car and M. Parrinello in 1985 and involves treating the relatively heavy atomic nuclei using the laws of classical Newtonian mechanics while retaining a quantum description of the electrons, which is necessary for an accurate description of chemical bonding. The term \textit{ab initio} means “from the beginning” and, in this context, is taken to indicate an approach based on fundamental principles, as opposed to empirical models. In this way, we can create a “virtual laboratory” \textit{in silico}—in the computer—for exploring a wide variety of chemical phenomena. The capabilities of the virtual lab are limited only by the computational resources available and the efficiency of the numerical algorithms.

AIMD calculations are computationally very intensive, requiring supercomputers with hundreds to thousands of processors. Exploiting the full potential of such a powerful computational resource requires specialized software that makes use of a programming technique called \textit{parallel programming}. The underlying idea of this paradigm is to break down a computational task into many subtasks and farm these out to the large number of individual yet tightly coupled central processing units (CPUs) contained within the supercomputer. Although the need to perform some of the subtasks sequentially cannot be avoided, a large number of them can be executed simultaneously, i.e., in “parallel,” by having each CPU perform computations locally and exchange data with other CPUs. The software encodes the algorithms for local computations and controls how and when messages are passed between the CPUs. The challenge in writing such software is to ensure that at each point in the calculation, every CPU has an equal amount of work to perform (called “dynamic load balancing”) and that CPUs do not get bogged down in communicating with each other. Working in collaboration with Professor L. Kale in the Department of Computer Science at the University of Illinois at Urbana-Champaign and Dr. G. J. Martyna in the physical sciences division at the IBM T. J. Watson Research Center in Yorktown Heights, we have developed a software package for performing the requisite calculations efficiently on hundreds of processors available at NYU and ten thousand processors available using IBM’s new BlueGene platform.

The specific application we will consider is a hybrid structure generated when an organic molecule forms chemical bonds with a silicon surface. Since these surfaces are produced by cleaving bulk silicon in particular ways, different surfaces are possible, and the reactions that can occur on them will be affected by the choice of surface. For the class of organic molecules we have been investigating, the most useful surface is a simple “cut across the top,” which, when allowed to relax, leaves long rows of silicon dimers (see Figure 1a). In fact, Figure 1a is an idealized structure that does not reflect the actual surface. The true surface structure is a disordered one as shown in Figure 1b.

This structure is characterized by a “buckled” pattern of the dimer rows, in which one silicon atom in each dimer dips below the surface and the other protrudes slightly. At room temperature, the buckling pattern is dynamic, with the dimers executing a kind of “rocking” motion or oscillation around the idealized structure of Figure 1a. The surface dimers are chemically reactive and can serve as receptors for certain types of organic molecules. For the latter, we have chosen two examples known as “conjugated dienes,” which are small organic molecules containing two electron-rich carbon-carbon double bonds that react favorably with the surface dimers. (The reaction occurs via a component of the double bond known as a π-bond.) Unfortunately, it is often difficult to predict whether a particular bonding pattern will form exclusively or be one of several possible patterns. Understanding the detailed dynamical mechanism of the reactions can provide important clues as to how one can ultimately control and tailor the chemistry to select out specific final products. In this example, the surface chemistry is complicated by the fact that the buckling pattern, and thereby the distribution of electrons in the dimers, fluctuates thermally. Thus, in employing chemical theory and high performance computing, one of our aims is to elucidate the reaction mechanism, which involves “running the reaction” many times in the computer in order to garner a statistically meaningful picture of how the reaction occurs. All calculations described below were performed at NYU, on an SGI Altix 3700 Bx2 system purchased with funds from an NSF Major Research Instrumentation Program.


5. A dimer is a special type of polymer made up of two linked subunits or monomers.
Products found. First, knowledge of this reaction path, which is understandably somewhat more complex than can be described here, allows the full product distribution to be rationalized and even predicted from a few basic principles. Second, the mechanism of Figure 3 involves a relatively stable intermediate (middle panel). Such an intermediate state can be exploited to tailor the reaction, by modifying the organic molecule, for example, so as to control where the second carbon-silicon bond forms and influence the final product. Finally, from an understanding of the reaction mechanism, it is possible to design in silico modified organic molecules that give rise to predictable changes in energetic and electronic properties along the reaction path and final products. We have, for example, created a designer molecule in the virtual laboratory in which a single hydrogen atom is replaced by a fluorine atom. This modification lowers the energy needed to detach the molecule from the surface, thereby rendering it potentially useful for chemical patterning, one of the major routes to surface preparation.

By increasing our understanding of how the surface chemistry works in this and other systems using the tools of the virtual laboratory and high performance computing platforms, we hope to predict new possibilities for molecule and substrate design. As the virtual laboratory concept matures, a key goal will be the algorithmic generation of increasingly novel chemical structures and materials in the computer with specific “tunable” properties—properties we can “dial in”—that will drive new technological, biological, and biomedical applications.

Mark Tuckerman is the Director of Graduate Studies and an Associate Professor of Chemistry and Mathematics in NYU’s Department of Chemistry and the Courant Institute of Mathematical Sciences; Robin Hayes is a postdoctoral student in NYU’s Dept. of Chemistry.
Over the past decade, faculty at NYU have used a wide variety of tools to supplement the in-person time spent with their students. These have ranged from simple web pages, to free commodity services such as Yahoo Groups or Google Docs, to NYU-supported tools including Prometheus, Blackboard, and Docent. As of 2003, the centrally supported offerings were dominated by a single tool: a customized version of the Blackboard learning management system. By focusing on one technology, ITS was able to achieve economies of scale: enrollment management was automated, high-availability mechanisms were put in place, and interactive tutorials were written and produced.

With these features in place, several years passed in which incoming faculty requests for online tools tended to look like nails to be addressed by the hammer at hand. The Blackboard system has proven useful to a majority of our faculty, but it has become increasingly clear that there is a significant minority who are underserved by the existing offerings. With most of the needs of most of our instructors now satisfied, attention can now be turned to the rest of the needs of the rest of the teaching faculty.

ITS and the NYU School of Medicine are pilot testing the Sakai community source learning management system. The Advanced Learning Exchange (ALEX), as this service is known, is being built to the requirements of the pilot participants, and each step in the process is guided directly by faculty. The software framework is highly customizable, offering the ability to satisfy many of the unmet faculty needs of which ITS is currently aware. It is also uncovering unarticulated needs. Having such a diverse toolbox at hand allows ITS to offer exactly the right tools for the unique nails, screws, and thumbtacks of incoming faculty requests.

COMMUNITY SOURCE SOFTWARE

For the most part, higher education institutions need a common set of online tools to complement classroom teaching: a list of students, a place to post readings and solution sets, and a means of distributing and collecting homework assignments. An electronic grade book is also a boon. Additionally, asynchronous discussion boards let students work with each other 24 by 7.

Beyond these basics, however, it turns out that every school, every department, and indeed every individual instructor has slightly different needs. Arts professors need highly detailed visual control of their online collections. Math departments require a way for students to show their work on the way to a solution. Film production classes are aggravated by the lack of an interactive calendar in Blackboard for booking a limited number of editing suites.

Enter Sakai. This rich, multifaceted system has the capacity to be many things to many people. It is a framework for achieving the goals common to all higher education institutions. It is also a set of tools for satisfying the specific needs of a given instructor. Sakai is a community, and it is also a process by which that community achieves tangible outcomes. Each of these facets of Sakai has the potential to serve NYU well. In turn, NYU has the opportunity to contribute back to the higher education community.

Sakai was born out of homegrown software from the University of Michigan, Indiana University, the Massachusetts Institute of Technology, and Stanford University. Each of these institutions had developed learning management systems that met their specific needs. As time passed and their local systems experienced natural obsolescence, they individually realized that rewriting their systems on a rolling basis in perpetuity was cost-prohibitive. The four founding institutions joined together in 2003 on the Sakai Project, with the assistance of a Mellon Foundation grant. The grant’s stated goal was to create both a set of educational software tools and a framework for their delivery.

The Sakai framework developed by the founding institutions provides an armature of commonly required elements: teacher support, student support, access to readings and other class materials, and a gradebook. Abstracted to the technical view, these are: a security model, a timing...
model, a submission model, and a data transfer model from a given tool to a grade book, and from the grade book to the University Registrar. The University of Michigan and Indiana University also contributed several core tools, including a roster, a content presentation tool, and a syllabus editor.

**The Community in Community Source**

In 2004, a grant from the Hewlett Foundation kick-started the Sakai Educational Partners Program, expanding the group of four founding institutions to 23 partnered institutions. Additional tools were quickly added by the early adopters, including University of California, Berkeley, the Etudes Consortium at Foothill College, and Cambridge University. Now, three years later, there are 100 partner institutions, including NYU, and 12 commercial affiliates, including Thomson Learning, Apple, IBM, Sun, and Oracle.

The community of Sakai participating institutions provides technical and user support for the software. Active mailing lists include system administrators in every time zone. It’s not uncommon for a question posted at 3:00am to have an answer by 3:30am. User support documentation is written at many institutions and made available to all other organizations free of charge. Best practices are exchanged directly by peers at various schools, without having to be funneled through a commercial intermediary. As Sakai has matured, commercial providers have also sprung up, on the model of Linux support organizations. Companies like rSmart and Unicon, for example, now offer pre-configured Sakai installations and hosted services.

**Multiple Paths, Many Tools**

One major advantage of Sakai is that institutions can independently choose the tools they wish to implement. By contrast, when choosing Blackboard, an institution necessarily chooses Blackboard’s grade book, discussion board, email interface, and so on. As of March 2007, for instance, the Sakai community offers three viable discussion boards and two different mechanisms for augmenting a class with email communication.

As needs for modifications or additions to Sakai are identified, tools to meet those needs are developed by freelance contributors enamored of the technology, by individual schools for whom the tool is an absolute must-have, or by the Sakai Foundation, when the need is sufficiently broad and the tool’s complexity exceeds a single person’s or institution’s resources. Given a world-wide network of academic institutions, software development could easily become chaotic, to say the least. The Sakai process focuses these efforts. The Sakai Foundation, led by an Executive Director, has five full-time employees. Each Educational Partner, regardless of size or endowment, has a single formal vote in prioritizing system requirements. Most recently the decision was made by the Partners to dedicate fresh effort to unifying the look and feel of the various tools deployed in the Sakai framework. Now that the underlying code base is stable, a big challenge in Sakai is usability. Each new tool seems to bring a fresh learning curve with it. As a result of this consensus, the Foundation is hiring a user experience design lead.

Swaying the community to vote is not the only means of getting things accomplished with Sakai, nor even the preferred one. The process encourages orchestration from above and action from below. Individual institutions are able to modify the Sakai system by application of effort: build it and they will come. Anyone can build any tool and submit it to the community for use. Three levels of tool categorization indicate the relative sustainability of a given piece of code: Contributed, Provisional, and Supported. Contributed tools are of varying quality: anyone can offer a Contributed tool to the Sakai community, but no guarantees are made about functionality, maintenance, or support. To obtain Provisional status, a tool must be in production at a minimum of two institutions; it is then included in the source and issue management systems of Sakai. Dedicated individuals take responsibility for maintenance of the application code. These tools are then included in the quality assurance (QA) process for each new release. Supported tools are provided by default in every Sakai distribution. These are truly the ready-for-prime-time tools. To earn Supported status they must be in production in more than three sites, and meet rigorous QA and support criteria. The Sakai Foundation makes a commitment to maintain all Supported tools in each release cycle.

**ALEX: Guided by Faculty**

New York University is currently conducting a pilot test of ALEX, our implementation of the Sakai software. The ALEX project at the Washington Square campus is headed up by Rich Malenitzka, Co-Manager of ITS’ Faculty Technology Services. Last fall, 16 faculty members agreed to run at least one Spring 2007 course in ALEX instead of NYU Blackboard. Twenty-three classes went live at http://alex.nyu.edu on January 16, 2007, with 899 student participants. Together with Ethan Ehrenberg, an ITS faculty technology specialist, Rich is in regular contact with the faculty who are participating in the pilot. Every suggestion, question, and complaint they receive, whether in person, by phone, or via email, is entered into Remedy, the ticket-tracking system used by ITS. Also destined for Remedy is every entry made in the online support and suggestion form in the ALEX pilot space. Finally, calls from students and faculty received by the ITS Client Services phone support team are entered into the same system. Every ticket gets broken down into its actionable parts and tagged with the related area of functionality in the software, and the
requestor's name. At the middle and end of each phase, all of this feedback is reviewed by the full Sakai pilot support team. The requests become the direct basis for modifications and augmentations.

By the midpoint of the first phase, some 75 suggestions had been gathered. Throughout the ALEX pilot, teaching will always come first, and the ITS support team was grateful to hear details on how the deployment did not meet specific needs, so we could prioritize addressing those requirements. From the pilot participants, we received 15 requests for improvements to the look and feel of the pilot system. This level of feedback in a 16-instructor pilot meant the interface changes were extremely important. The two clearest messages were: too much screen real estate was consumed by visual 'fluff,' leaving insufficient display space for content, and faculty needed to be able to upload their own banner images, instead of being stuck with the single banner provided. We received requests for improved email functionality, specifically, the ability to send email to individuals or groups with a single click. Blog and wiki functionality also topped the list.

In response, the ITS ALEX team recently created and released ten new design "skins" for ALEX courses, one of which removes all excess space consumption and maximizes the area for course content. A second email tool was enabled alongside the default tool included at the pilot launch. Sakai’s RWiki system was also added to ALEX. A tool to create custom banner displays tops our list for the next modification and augmentation cycle, and the upcoming NYU Blogs service pilot (see p. 6) will be offered to the ALEX pilot faculty as a possible solution for their blogging needs.

The ALEX team will soon be going back to each faculty pilot participant with the full list of feedback we’ve received from them and a summary of what we’ve done in response. The remainder of phase one will be spent gauging how well we’ve responded to the feedback so far and prioritizing what we should address in the next phase.

As exciting as the Sakai system is, the framework, tools, and support mechanisms are largely about possibilities. Sakai is not shrink-wrapped software. In building ALEX on Sakai, we are counting on the faculty and students to determine what is right for the NYU community. While implementation choices are being made, ITS is simultaneously developing internal expertise on the system, faculty support, and client services fronts. With each phase of the ALEX pilot, we will develop more internal ITS supports for the system and introduce more tools for use by faculty and students. We are learning and creating as we go, and hope that you will join us in this process.

For more information about the Washington Square campus implementation of ALEX, visit www.nyu.edu/its/alex/, or explore the system at http://alex.nyu.edu/. If you are interested in participating in a future round of pilot testing for this version of ALEX, please fill out the application form at www.nyu.edu/its/faculty/pilot/. For information about the NYU School of Medicine version of ALEX, see http://alex.med.nyu.edu, or contact Marc Triola at marc.triola@med.nyu.edu. For more information about Sakai, see http://sakaiproject.org.

Max Whitney works in the eServices department of NYU’s Information Technology Services and is the technical lead on the ALEX project.
Do you enjoy most aspects of research, but dread the final job of creating a formatted bibliography? Thankfully, the days of sweating over where to add each comma in bibliographic citations are gone; software that generates and formats bibliographies now makes the tedium associated with this important but time-consuming aspect of research a thing of the past. Like most academic institutions, NYU supports the use of these bibliographic management tools. Included among those supported by the NYU Libraries are RefWorks, ProCite, and EndNote (see http://library.nyu.edu/bib/). This article will focus on RefWorks, one of the most powerful and easiest to use of the major bibliographic management tools, and available to NYU students, faculty, and staff through a free account from the Libraries.

Bibliographic software programs offer a myriad of citation format options, from the standard MLA and APA formats, to the far more obscure. With hundreds of styles to choose from, few researchers armed with a RefWorks account will have to construct their own citations. With RefWorks, researchers can automatically generate a bibliography from the database of sources they’ve selected and stored; footnotes and citations within the text of a paper are similarly easy to produce.

Beyond bibliographies, RefWorks and the other tools noted above are increasingly used to manage and organize research. With RefWorks, researchers can create a database of all types of material, from books found in a library catalog (like BobCat), to articles in databases and pages from websites. References can be added “on the fly” from most electronic sources while searching, thereby alleviating a lot of extra work and effort. Once added, the citations can be organized into any number of folders. In addition, a practically unlimited Notes field is available, allowing the researcher to add personal information, including quotations and other details taken from the work to be cited.

RefWorks is web-based, and so can be used from any computer with Internet access. Many of the Library’s searchable e-collections allow direct exporting to RefWorks and the other bibliographic citation tools. The Advanced tab within SFX—a tool in many of the Libraries’ databases that leads you to full text versions of e-resources—offers direct export to any of the three citation software programs, making it easy for researchers to execute a search, find items, and, with a mouse click, add them to the bibliographic tool of their choice.

**Advanced Features**

Since citing and using websites for research is now common...
practice, RefWorks also provides a bookmarklet that allows researchers to “grab” website data, which is then directly imported into their RefWorks databases of citations. The RefGrab-It bookmarklet can be added to web browser toolbars or included among the browser’s favorites. Once the website is added to a RefWorks database using the bookmarklet, the captured website data can be edited for proper citation output.

While these citation software programs are primarily used as convenient tools for generating formatted bibliographies, they provide additional functionality to keep pace with the increasingly social nature of the Internet. Realizing that their academic audience might want to share research with one another, RefWorks includes a feature called RefShare. This tool allows scholars to share their research—stored in RefWorks—with select colleagues, or with the entire University. Options can be selected to allow group editing of these shareable folders, as well as to create RSS feeds. These features are particularly useful for faculty who might want to include folders of references in NYU Blackboard or other course management systems, rather than individually include article citations.

In an effort to become a one-stop online research portal, RefWorks now includes an RSS feed reader. Whereas many researchers used to subscribe to subject “alerts” and journal tables of contents via email, many journals now deliver their table of contents through RSS feeds. Any RSS feed can be added to the RSS section of RefWorks. Once a feed is added to the RefWorks RSS area, the researcher can view and search any of the articles in the feed seamlessly within the RefWorks interface, and add the citations to any of their folders within RefWorks. They can also set up an RSS feed for their own shareable folders, as mentioned above. For details about these advanced features, see: http://library.nyu.edu/research/tutorials/refworks/advanced.html.

**CATALOG YOUR PERSONAL LIBRARY—THE EASY WAY**

In addition to managing items found in libraries, RefWorks can be very useful for researchers with their own personal libraries. Large collections of books, journals, and other materials can be challenging to maintain. When collections become large and unwieldy, finding a desired item can be daunting—that’s why libraries have catalogs. With a RefWorks account, researchers can quickly “copy catalog” items, and even assign them a Library of Congress Dewey classification number; items so cataloged can be shelved and retrieved with ease.

**OPEN A REFWORKS ACCOUNT – IT’S FREE!**

To begin using RefWorks, visit the NYU Libraries’ website, http://library.nyu.edu/bib/refworks.html, and follow the instructions found under “Getting Started with RefWorks.” Even if you leave NYU at some point in the future, individual accounts can be maintained for an annual subscription fee (currently $100 a year).

Nadaleen Tempelman-Kluit is the Instructional Design Librarian at NYU’s Bobst Library.
In today’s world, most critical and personally identifiable information is stored in electronic format. From a business perspective, storing such information electronically makes it possible to deliver quick and efficient services to clients by being able to look up and uniquely identify them. However, given that such data is easily accessible, there exists an increased risk for it to be exposed, either by accident or by a malicious party.

Electronic data is a collection of information elements that is intended to be accessible, with the capacity for it to be modified, replicated, and destroyed by one or many people. Without the proper security controls, data of any kind can potentially be exposed at any point during its existence. This risk can occur as it traverses computer networks, is transmitted over wireless connections, gets input into databases, or is modified in spreadsheets. If it were possible to follow the many paths that unsecured data travels, one might be justifiably concerned as to how many individuals might have access to it, how it is stored, and how it is handled.

As with any piece of information, once data has been provided to another person or organization, the risk of it being transmitted to another arbitrary person or group is greatly increased. The reality is, once that information has been given out, it cannot be easily “taken back” or secured. Data security is especially important when the data contains financial, health, or personally identifiable information. If that highly critical data were to be exposed to a malicious individual, it could lead to identity theft, create an unnecessary burden for the data exposure victim, and present a serious problem to the institution that leaked the information.

In combination, all of these recommendations will help protect the NYU community from identity theft, negative publicity, increased costs, legal liability, and disciplinary action.

One of the issues that many organizations are confronting is securing data while retaining the ability to efficiently access it. State and federal regulations enforce the need to secure critical data, but it is up to individual organizations to deploy the means of achieving that end. Depending on the quantity of data being collected, securing the processes that produce, handle, and destroy critical data may be easier said than done.

Despite the known risks, many organizations depend on such critical data to carry out their normal business practices. Without that information, many of the services that clients have come to enjoy would be made more complicated or impossible altogether. Nevertheless, in the last five years, following a series of high-profile security breaches, information security has evolved to become one of the highest priorities for many institutions across all sectors. Recent breach laws, such as New York State’s Breach and Notification Act (2005) make the consequences of critical data exposure even more serious, by requiring institutional accountability and the notification of affected individuals.

**RECENT INCIDENTS AT OTHER ACADEMIC INSTITUTIONS**

Despite the fact that many sectors have increased their investments and resources in data security, there have been large-scale data breach incidents on a nearly annual basis, with an estimated ten million victims or more per year. The consequences of such data breaches can run the gamut from tarnishing an organization’s reputation, to financial loss, and even legal liability.

One such incident took place in April 2006 at Ohio University. In that incident, the personal information for more than 300,000 alumni and Social Security Numbers (SSNs) for approximately 137,000 University members were exposed to a malicious outside party. Before the compromise, the critical data was being insecurely stored on an unprotected server. While the issue...
was discovered in April of 2006, the compromise itself occurred as early as 2005. Over the span of an entire year, the Information Technology (IT) staff at Ohio University believed that the server was decommissioned and no longer connected to the network. As a result of this significant oversight, the server became vulnerable to attack because it did not receive the necessary security patches.

Already beset by this massive exposure, Ohio University acknowledged a second server compromise that took place that same month in another department. In this second incident, the SSNs and medical records of over 60,000 students were exposed. Given the large number of individuals affected by these two events, the University’s administration fired two IT staff members and sought the resignation of the University’s CIO.

The Ohio University security incidents were the largest security breaches at a U.S. educational institution until November 21, 2006, when the University of California, Los Angeles (UCLA) discovered a significant security breach in one of its systems. Officials revealed that attackers broke into a database containing personally identifiable information on approximately 800,000 former and current students, staff, and faculty members.

As was the case in the Ohio University incident, the security breach at UCLA was discovered well after the initial compromise had occurred. The database that was accessed by the attackers contained names, SSNs, birth dates, and home addresses. Credit card information was not included, but it remains plausible that the attackers could rob their victims’ identities by utilizing a combination of the information acquired. In both cases, the vector of attack was the use of insecure software that lacked critical security patches and updates. The attackers exploited these software flaws and accessed the databases over the course of an entire year before IT staff noticed anything.

Overall, 2006 was marked by a series of high-profile data exposure incidents across many sectors. In most cases, they were the result of mismanagement, a poor implementation of basic security controls, or user-error in the handling and proper disposal of restricted critical data. While technical means can be employed to mitigate critical information exposure, it is still imperative for any organization to institute clear policies, standards, and guidelines that help to define and build up its security profile. A combination of basic security controls, along with strong security procedures and policies, can help to significantly reduce the likelihood of potential data breaches.

NYU’S COMMITMENT

Over the last few years, given the increasing threats related to identity theft, state and federal regulations have instituted protections for personally identifiable information such as credit card, banking, and Social Security Numbers. According to the Federal Trade Commission (FTC), identity theft affects more than ten million Americans each year, with businesses paying upwards of $60 billion in losses. The fear that these figures might increase with time has served as a catalyst for the expansion of clear and concise security policies for business, educational, and government organizations.

Guided by state and federal regulations, such as FERPA, GLBA, HIPAA, and New York State’s Breach and Notification Act, NYU has its own set of policies and guidelines for securing critical data. The University’s “Policy on Responsible Use of NYU Computers and Data” serves as the framework for instituting strong security controls for the protection of critical personally identifiable data.

Beginning in 2004, NYU began an ongoing project to institute new University Identifiers (UIDs) in lieu of the former identification method, which employed Social Security Numbers. The UIDs serve to identify students, faculty, administrators, and staff within the University, but are meaningless outside of the scope of the University. Much like the NYU NetID assigned to NYU community members, the UID is a randomized identifier for a University individual that another party cannot utilize to commit identity theft and other federal and state crimes. As the UIDs were implemented and became the principal individual identifier for all University business, the former SSN-based identifier system was largely retired.

Despite the changeover to UIDs, however, the use of SSNs cannot be fully phased out, since they are still needed for matters related to the state and federal governments, e.g., the IRS. Moreover, while the change to the new UID has been swift and effective, SSN usage remains essential for internal University matters related to credit score retrieval and financial aid.

The NYU policies that instituted the new UID system also give guidance as to when SSNs are to be collected, used, and released. SSNs will not be collected or used if another ID would suffice for business purposes, or unless it is legally required, or a person volunteers it to locate or confirm personal records. In addition, SSNs will not be released unless legally required,
the owner authorizes it, an outside firm is acting on the University’s behalf, or NYU’s Legal Counsel has provided approval.6

NYU is continuously working to minimize the use of personally identifiable information. Beyond policy changes, security awareness initiatives are underway to assist staff and administrators in reducing the utilization of SSNs and replacing them with UIDs wherever possible. To support the internal interoperability of the new identifier, UIDs were added to a plethora of databases where SSNs were previously the sole identifier, such as those in Human Resources and the NYU Student Information System. Ongoing initiatives also entail the minimized use of SSNs for internal data transfers.

NYU is committed to ensuring the privacy and proper handling of all personally identifiable information. It is important to recognize, however, that this responsibility is also spread amongst all University employees and offices that handle personal information. For more information, see NYU’s responsible use policy.7

WHAT YOU CAN DO

The best way to understand the importance of securing critical data is by examining your workflow and mapping out where personally identifiable data exists. A good place to start is by securing all of your home and office computers. Follow these four basic security practices for each computer:

1. Download and install the latest operating system patches, and set the computer to check for updates automatically.
2. Download and install the latest antivirus definitions, and set the computer to check for updates automatically.
3. Enable your computer’s firewall.
4. Create account passwords that consist of a minimum of eight alphanumeric characters.

Simply by enacting these four basic security measures, the risks of a potential compromise of your computer(s) are greatly mitigated. It is also prudent to password-protect any handheld devices you use, such as Blackberries and Treos, in case these devices are lost or stolen.

Next, browse through files stored on your computer(s), such as Word documents, Excel spreadsheets, databases, and other file formats, to identify where personally identifiable information is present. Identity files that contain possible Social Security Numbers by running searches for keywords such as “SSN” or “Social Security.” In addition, expand your search parameters to look for associated files that may contain names, addresses, and credit card numbers.

If you deal with University ID numbers that date back before 2004, you may also consider looking for keywords such as “University ID,” “UID,” “Student ID,” “Staff ID,” or “Faculty ID,” as these may contain SSNs as well. If you find such information on your work computer, whether it is a laptop or desktop, it is recommended that you contact your local office administrator and then remove the critical data as soon as possible. A compromise (by a virus or other security exploit) of a computer containing such critical data may inadvertently result in personally identifiable information being exposed to a malicious third party.

Compared to a desktop, a laptop computer’s mobility puts it at greater risk for critical data exposure if it should be lost or stolen. State regulations, such as the New York State Breach and Notification Act, require the reporting of computers containing unencrypted personally identifiable information to the Attorney General of New York State and the prompt notification of the affected victims of the breach. In the event that an NYU employee loses a laptop that contains unencrypted names and addresses with corresponding credit card information and/or Social Security Numbers, the University would be held accountable and obligated to issue privacy breach notifications. As such, it is highly recommended that critical data not be stored on a laptop.

Next, check to see if physical media, such as old floppy or ZIP discs, USB keys, CDs, DVDs, and paper records are being used to store or document restricted data. Assess whether or not these media types are secure from tampering or loss. Staff should be trained to recognize different types of critical data and to handle such data with a level of security appropriate to its sensitivity.

Once the data has been used, a plan to securely destroy it should be enacted as a standard business practice.

Finally, open a dialogue within your department about the use of personally identifiable information and how it is handled. Discuss the importance of protecting, minimizing, or even phasing out critical data usage where possible. Examine alternative places where data could be stored, so that staff members don’t replicate official data stores on their local computers. As a final point, managers and directors should reduce or remove staff members’ access to critical data by the principle of least privileges: grant the least amount of access they need in order to perform their job functions.

In combination, all of these recommendations will help protect the University community from identity theft, negative publicity, increased costs, legal liability, and disciplinary action. Each member of the NYU community is essential to keeping the “chain of security” intact; a break in any portion of that chain could potentially pose a risk to the entire University. For more information on security policies, network and computer security, identity theft, and critical data handling, please visit: www.nyu.edu/its/security/.

Christopher Penido is a Network Security Analyst in ITS’ Communications & Computing Services.

6. www.nyu.edu/its/policies/responsibleuse.html
7. Ibid.
Case Study in Instructional Technology

The Spring 2007 Instructional Technology Fellowship

By Ethan Ehrenberg & Chaoyan Dong

ethan.ehrenberg@nyu.edu

WHAT IS THE FELLOWSHIP?

Given the number of new technologies to choose from, a faculty member at an institution such as NYU who is preparing to teach his or her course may ask, “Which technologies can help students learn in my class, and how can I use these technologies effectively to achieve this goal?” Since the answer to this question is often as unique as the course being taught and the faculty member who is teaching it, the ITS Instructional Technology Fellowship was created to help find it on a course-by-course, faculty-by-faculty basis.

The ITS Instructional Technology Fellowship was initiated by the Faculty Technology Services (FTS) group of ITS in the spring of 2006. The Fellowship gives faculty members the opportunity to work one-on-one with a team of technology experts from FTS to focus on how technology can be used to improve student learning in a particular course. The outcome of each fellowship is a well-formulated, technology-integrated course that can be used in multiple semesters and generate a demonstrable improvement in student learning. Although FTS staff strive to customize each fellowship to meet individual professors’ needs, all fellowships are structured according to a few simple guidelines, as described below. A fellowship lasts two semesters. During the semester prior to when the course is to be taught, we focus on reviewing the course goals and requirements, developing targeted solutions using available technology services, and then preparing the faculty member with the necessary training to manage all technologies self-sufficiently while the course is in session. During the semester when the course is offered, the Fellowship team remains available for ongoing support and refinement to the active technologies.

Faculty apply to the Instructional Technology Fellowship program by completing an online form (see www.nyu.edu/its/faculty/fellowship/) that asks applicants to describe the challenges encountered in the course and their reasons for applying to the fellowship. FTS staff then review the applications and make selections based on the best fit between the applicants’ goals and our available expertise.

THE CASE

Background

Professor Katz is a part-time faculty member at NYU’s College of Arts & Science who specializes in U.S. History and has been teaching at NYU for some 25 years. She has prior experience in combining technology and scholarship from her work as the Director of the Margaret Sanger Papers Project. The course she identified in her application for the Fellowship is entitled Modern American History. About 80 undergraduate students take the course each semester, including majors from the Department of History and those seeking to fulfill the Liberal Arts requirement. Students attend lectures twice a week for 75 minutes each, as well as one recitation session per week, with approximately 20 students in each recitation group. There are two teaching assistants, Bekah Friedman and Atiba Pertilla, who each cover two recitation sections.

Purpose

Professor Katz applied to the Fellowship program seeking to
integrate technology more effectively into the course through the use of different conceptual models. She wanted to find new methods to engage students with the course material, both in the lectures and in the recitations, and had a particular interest in incorporating multimedia elements to enrich the historical texts and lectures. Her past attempts to incorporate technologies had not yielded satisfying results.

Goals & Ground Rules
First, we established the project duration. We met with Professor Katz in October 2006 and agreed that according to the structure of the Fellowship, we would use the time prior to the start of the spring 2007 semester for planning and implementing course solutions, and the time during the spring semester for ongoing training, support, and minor refinements.

Next, we decided to meet every week for one hour until those meetings became unnecessary. Since we wanted a holistic view of the course and how technology could be integrated into it, we agreed that we would accomplish more by meeting, considering a problem for a brief time, brainstorming some possible solutions, and then taking some time to “sleep on it,” instead of sitting down and trying to figure everything out at one time.

With the structure established, we turned our attention to the course goals. In several informal conversations, we discussed Professor Katz’s past experiences with the course, analyzed the syllabus, and talked about hopes and expectations. The main goal for the Fellowship team was to understand what was most important to the Professor and what were some of her major concerns. Our experience has taught us that although this process can take time, it is critically important when working on a group project that everyone involved agree on a common set of clearly articulated goals. In due time, we established the following set of goals for the course:

1. Students will learn to talk intelligently about American history, using the language of the discipline.
2. Students will know the dates of important events and demonstrate knowledge of the chronological order for most other events.
3. Students will be able to think critically and evaluate the quality of source materials.
4. Students will demonstrate a basic level understanding of historiography.
5. Students will gain in-class note taking, organization, and presentation skills.
6. Students will be able to formulate, present, and defend a historical argument based on analysis of evidence.

Solutions
In response to the course goals, and after a close analysis of the course content through the syllabus, we came up with two main solution areas: delivering course content online and designing engaging assignments. To begin designing and implementing solutions, we broke each area into three elements: challenge, solution, and implementation.

DELIVERING CONTENT
Challenge
Students were not engaged by the readings and other course material to the extent that was wished. Students would often arrive at lectures and recitations unprepared to participate in a class discussion and without questions in mind. Students had a hard time fitting the work into their busy schedules.

Solution
We wanted to make sure that we reduced all barriers to accessing the content to a minimum. We reasoned that the easier it is to access the material, the more opportunities students would have to read it. We decided to optimize the NYU Blackboard course site that Professor Katz had used in previous semesters. As an online course management system, NYU Blackboard provides a convenient way to gather a large amount of content in a location that is only available to students registered for the class and that can be accessed easily with any web browser and Internet connection.

Since the Blackboard site already had an abundance of content, we concentrated on organizing and presenting the content in a way that would be more intuitive for the students and would better reflect course goals. As the syllabus already divided the course into approximately 16 topic units, roughly one per week, we imagined folders in Blackboard under a “Course Units” button that would reflect those units. We thought each unit folder should include three elements: “Themes,” “Required Readings and Relevant Resources,” and “Questions/Issues to Think About.” We believed this structure would allow Professor Katz to direct student engagement with the material while still giving students the independence and convenience of accessing the course content online.

Implementation
Implementing the structure described above into the Blackboard course site was a fairly straightforward process. First, we presented the concept to Professor Katz. Once we reached an agreement on the vision, the Fellowship team implemented a mock-up example of the design, ensuring that the site was not yet visible to students. We then presented the mock-up to Professor Katz, listened to her feedback and suggestions, and went back to make modifications. Once there was agreement on the mock-up, we implemented the design throughout the course site. We showed Professor Katz and the TAs what we had implemented, and demonstrated how they could make further modifications, as needed. All course site modifications were complete before the start of classes.
ENGAGING ASSIGNMENTS: DISCUSSION BOARD

Challenge
Professor Katz was of the opinion that even with the optimized structure of the course content in the NYU Blackboard site, the students would still need more direction to adequately engage with the material. She wanted to make sure that students read and thought through the course material before the lectures and recitations, but, with 80 students, it was not feasible to check up on each one individually.

Solution
We suggested using the Blackboard Discussion Board for a series of ongoing writing assignments. As part of an assignment, students would post original comments based on that week’s readings and responsive replies based on the postings of their peers. In order to balance the workload, Professor Katz wanted the students to post four original responses and four replies over the semester, choosing from any of the course units, so long as they did not post an original comment and reply in the same week, and they completed original posts before that week’s lecture. The students were expected to take the postings seriously, so we suggested that she inform students that the postings would be graded at the end of the semester, and that both she and the TAs would participate in the online discussion and occasionally give feedback on posts.

Implementation
We used the group feature in Blackboard to establish a group for each of the recitation sections. For each group, we enabled the group discussion board, which is only accessible by the members of the group, plus the instructor and TAs. Within the group discussion board, we established 16 different forums to correspond to the readings for the 16 course units. To facilitate access to the group discussion board, we added a new navigation button called “Recitation Sections” that would take students directly to a page where they could choose their section and enter the discussion board. We provided training for Professor Katz and the TAs, to ensure they were able to manage the discussion board on their own. The discussion board was fully implemented before the start of classes.

ENGAGING ASSIGNMENTS: CLASS WIKI

Challenge
In addition to the assignments based on the weekly readings, Professor Katz also wanted the students to complete one original research paper. In order to build their evaluation, organization, and presentation skills, she decided that the students should research and write about a focused topic related to one of the course units. From past experience, she found that a traditional approach to term papers sometimes yielded bland papers that lacked the kind of critical engagement that she sought. She believed that a bit more consistent feedback and guidance would have improved the quality of the papers, but the large number of students made it difficult to provide that kind of feedback on an individual basis.

Solution
The Fellowship team suggested the development of a class wiki as a replacement for the traditional term paper. Wikis use a technology that allows multiple people to collaborate in publishing an online web resource. The authoring options in wikis are fairly simple and tend to emphasize text, images, and

1. Possibly the best known wiki is the online collaborative encyclopedia, Wikipedia (http://en.wikipedia.org/).
The use of a wiki is most effective when consistent participation by a number of people is used to build and share knowledge on a particular topic. Our goal was to combine independent work (like that done on a term paper) with a collaborative element, enabling students to help refine each other’s work and see how their contribution might fit into a larger scholarly context.

Wikis by their nature are unstructured, so to help organize the class wiki project, we suggested first creating four thematic divisions that would span the time period of the course, then assigning one theme to each of the recitation sections. The themes Professor Katz suggested were “Religion and Reform,” “Industrial and Post-Industrial Nation,” “Power and Cultural Hegemony,” and “Imperialism.” Each student would then be asked to pick one focused topic within the given theme and to produce one wiki “page” representing their research on that topic—including references, images, and other elements that would typically include in a traditional term paper. After completing their pages, each recitation section would be asked to complete a collaborative overview page that would introduce the major theme for the recitation session and include links to the individual pages of the students. We recommended that the overview page include a timeline, a table of contents, and other elements that could help bring the various focus pages together and lend context. The students would also be encouraged to link to each other’s pages and references to further enrich the resource.

The combination of both independent and collaborative elements is intended to give students a sense of participation as scholars in this discipline. One of the great pedagogical advantages of using a wiki, beyond its collaborative feature, is that it is a publicly accessible resource that can be developed over multiple semesters. We hope that the idea that students are not just completing an assignment, but are instead participating in the development of an online resource on modern American history, provides an added sense of ownership and an additional incentive to engage in the material.

Implementation
Currently, the wiki service at NYU is in an experimental, pilot phase. To implement the desired solution for Professor Katz’s class, the Fellowship team coordinated with the wiki support team in ITS eServices to create a pilot wiki, designating Professor Katz, the two TAs, and all the students as editors.

Editing and managing a wiki involves using both a WYSIWYG (“what you see is what you get”) editor as well as a specialized “wiki mark-up” language, which is a simplified version of HTML. We provided the necessary training to ensure that Professor Katz and the TAs felt comfortable using and managing the wiki on their own. The TAs then began editing the wiki and setting up sections, to facilitate students’ work when they began to use the wiki.

Next, we worked with Professor Katz and the TAs to develop a strategy for presenting the assignment to the students and introducing the wiki technology. We decided on an incremental approach. After being informed that the wiki would replace the typical term paper, the students were instructed to first pick topics and begin gathering resources, thus postponing their actual encounter with the wiki.

A forum was established for each unit’s readings.

<table>
<thead>
<tr>
<th>2</th>
<th>Reconstruction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impact of presidential vs. congressional Reconstruction:</td>
<td></td>
</tr>
<tr>
<td>Impact of the 3 Reconstruction amendments.</td>
<td></td>
</tr>
<tr>
<td>Did the Civil War and in 1865 or 1877?</td>
<td></td>
</tr>
<tr>
<td>The South lost the war, but who lost the peace?</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3</th>
<th>The West</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conquest of the West</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4</th>
<th>Industrial Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rise of Big business</td>
<td></td>
</tr>
<tr>
<td>Impact on workers</td>
<td></td>
</tr>
<tr>
<td>Race, class and ethnicity in new industrial order</td>
<td></td>
</tr>
</tbody>
</table>

2. Even though the output would undoubtedly be the equivalent of several typed pages, we use the term wiki page to suggest each student’s topic space in the wiki.
with the technology until after they had completed the more familiar part of the assignment. Prior to the deadline for the first draft, we organized a 60 minute in-class demonstration/tutorial on how to use the wiki, focusing only on the elements they would need to complete the project, namely: creating a page, changing the page title, inserting images, creating external and internal links, and footnoting. At the end of the demonstration, students were told that they should complete their first draft using the wiki, and that they would probably find the experience similar to using a regular word processing program. We also established a separate forum in the class’ Blackboard discussion board, as a venue for conversation and questions on the wiki project. During the recitation session, the TAs also fielded questions and provided guidance on the wiki project. Once the individual wiki pages were more or less completed, the TAs orchestrated the collaborative part of the project in recitation, building the overview page(s) that helped unify the different page elements within a theme.

OUTCOMES & EVALUATION
Thus far, feedback on the Fellowship process and the results of the technology integration has been positive. Professor Katz and the TAs reported that they enjoyed the process and that students seem to be responding well to the changes. The Fellowship team plans to conduct end-of-semester surveys with Professor Katz, the TAs, and the students that will focus on their satisfaction with the process, difficulties that may have been encountered, and the impact on learning outcomes. We also plan to compare the current semester to previous semesters, using the measure of average grade for this course, to see if our efforts made an impact.

In addition, we plan to conduct a series of “exit interviews” with Professor Katz and the TAs to gather descriptive data about the Fellowship process, overall differences between this semester’s course and previous semesters’, the effectiveness of the technology integration for achieving course goals, and the quantity and quality of student involvement. These evaluations will enable us to make further recommendations to both Professor Katz and other faculty members interested in implementing similar teaching and learning projects in their courses.

For more information about the Instructional Technology Fellowship, or to apply for a future semester, visit www.nyu.edu/its/faculty/fellowship/.

Ethan Ehrenberg is an ITS Faculty Technology Specialist at the NYU Digital Studio. Chaoyan Dong, a PhD candidate at NYU Steinhardt’s Educational Communication & Technology program, is also an Instructional Technology Associate at the NYU Digital Studio.
INTRODUCTION
The U.S. Environmental Protection Agency defines environmental justice as “...the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.” Environmental injustice has been defined as the disproportionate exposure of communities of color and poor people, or other vulnerable groups, such as children and the elderly, to environmental risks.

In the analyses described in this article, Geographic Information Systems (GIS) techniques and models were used extensively to facilitate and streamline the analysis of demographic and socioeconomic data about people living in close proximity to waste transfer stations.

Using GIS to Examine Environmental Injustice in the South Bronx
The Case of Waste Transfer Stations¹

Zvia Segal Naphtali, Carlos Restrepo & Rae Zimmerman
zvia.naphtali@nyu.edu; carlos.restrepo@nyu.edu; rae.zimmerman@nyu.edu

1. This article describes the work of researchers at New York University’s (NYU’s) Institute for Civil Infrastructure Systems (ICIS), a multi-disciplinary research institute affiliated with the Wagner Graduate School of Public Service that focuses on innovative approaches to infrastructure management, planning, and policy. This work is part of the South Bronx Environmental Health and Policy Study, a collaborative research project that also includes a research team from the NYU School of Medicine, as well as four local community groups, and is funded by the U.S. Environmental Protection Agency (see acknowledgement). The ICIS portion of the project focuses on the relationships between solid waste management, transportation, air quality, and public health in the South Bronx.


4. GIS is a collection of computer hardware, software, and geographic data for capturing, managing, analyzing, and displaying all forms of geographically referenced information. (www.gis.com/whatisgis/)

5. Figure 1 shows the project study area, defined as community boards 1, 2, 3, 4 and 9 in Bronx County, and the location of truck routes and waste transfer facilities.
proximity to waste transfer stations and major highways, and to determine whether a disproportionate number of people in communities of color and poor people live in proximity to these sites. The area of application for this analysis was a portion of the South Bronx, New York, as shown in Figure 1 on p. 23.

The analysis of the racial, ethnic, and other socioeconomic characteristics of the population around existing waste transfer stations in the South Bronx was conducted primarily for those residing at various distances within one mile of these stations. A set of four buffers including 1/4-, 1/2-, 3/4- and one-mile radii from the waste transfer stations were evaluated for the relative stability of these characteristics in the immediate vicinity of these sites.

Information on racial and ethnic characteristics was obtained from the 2000 U.S. Census at the Census Block level (which is the smallest geographic unit for which these data from the Census are available). Information on other socioeconomic characteristics such as income, poverty, and housing values was obtained from the 2000 Census data aggregated at the Census Block Group level (which is, again, the smallest geographic unit for which these data from the Census are available). Figure 2 shows the locations of waste transfer stations in Bronx County, with buffers of different radii around them, and Census 2000 Blocks.

The data for the locations of the waste transfer stations were obtained from the New York City Department of Sanitation. Waste transfer stations are facilities where solid waste, such as putrescible trash, recyclables, and construction debris, is consolidated from multiple collection vehicles. The waste products are then compacted and loaded onto larger vehicles to be transported to final disposal sites.  

According to the NYC Solid Waste Management Plan, about 13,000 tons of residential trash are discarded every day in the city. New York City’s waste stream also includes an additional 20,000 tons of commercial waste per day. In order to discard this waste, New York City utilizes approximately 60 private waste transfer stations. These facilities are generally located in neighborhoods that are zoned for manufacturing land uses. The South Bronx has many areas zoned for such land uses, which contributes to the fact that the area has a disproportionate share of these facilities. Approximately 15 waste transfer stations, or about 24% of the city’s total number of these stations, are estimated to be located there. These stations handle over 31% of New York City’s solid waste. Meanwhile, the South Bronx houses about 6.5% of the City’s population.

Traffic patterns are also of concern in the South Bronx. More than 3,000 trucks drive through the Hunts Point peninsula of the South Bronx every day. This includes traffic related to waste transfer and other commercial activities. Residents have been complaining for years about the air and noise pollution associated with the traffic patterns in the area. Many residents believe that the diesel fumes associated with traffic generated by these activities are associated with the asthma rates observed in the South Bronx. These rates are among the highest in the United States and

have been steadily increasing since 1980.  

As mentioned earlier, GIS technology was used in our analysis to examine the socioeconomic characteristics of the people living around waste transfer stations. The general findings with respect to socioeconomic characteristics—including race, ethnicity, household income, poverty, and housing value—of the populations that live within a mile or less of the waste transfer stations’ locations are summarized as follows:

1. Populations living in close proximity (within one mile) to the South Bronx waste transfer stations tend to be more Black and Hispanic than in the Bronx as a whole.

2. The socioeconomic characteristics of the population in this area—median household income or value of owner-occupied housing units—are generally lower within one mile distance from the waste transfer stations than in the study area as a whole, the Bronx, and the other NYC boroughs. Supporting this finding is the fact that poverty rates are higher within the one-mile radius.

**MODELING & SENSITIVITY ANALYSIS USING ARCGIS**

This study used GIS to create buffers around five putrescible waste transfer stations. Census data on the population, race, ethnicity, and median household income in the buffers and the study area were analyzed and compared to the Bronx and NYC as a whole, as reference areas.

“Sensitivity Analysis” was used to portray how applying each of the different methods of buffering the waste transfer stations using GIS (described below) might have altered the results. Earlier studies that did not employ GIS used different methods for aggregating population characteristics, for example, by using circles, aggregating Census Blocks, or the larger Block Groups. These studies noted how results changed dramatically depending on how areas were defined with distance.  

**BUFFERS AROUND WASTE TRANSFER STATIONS: COMPARING THREE GIS-BASED TECHNIQUES FOR ESTIMATING DEMOGRAPHIC CHARACTERISTICS**

Three methods of buffering were compared as part of the GIS analyses: the polygon intersection method, the areal interpolation method, and the polygon containment method. These can be applied to buffering that involves Census Blocks or Block Groups. Each of these GIS-based methods involves a different approach to identifying the Census Blocks or Block Groups encompassed by the buffer.

The areal interpolation method is the most accurate, but requires calculation of the area of the Blocks or Block Groups intersected by the buffer, and various assumptions associated with such a calculation. The polygon intersection method tends to overestimate the population, whereas the polygon containment technique tends to underestimate population. The three methods are illustrated in Figure 3.  

Census Blocks offer the most detailed Census geography and yield the most precise estimates, but only limited demographic information is reported at the Block level. Figure 3 shows the Census Block and Census Block Group geographies used to derive population estimates for a one-mile study area surrounding a proposed bridge location. The shaded Census units show the area from which the one-mile area estimates are determined. Note that the same one-mile buffer is shown in each diagram. The population estimates obtained from the various methods and Census units vary by as much as 12,092 persons, or 4.7%.

**The Polygon Intersection Method**

Figure 4 on p. 26 shows the application of the polygon intersection method to buffering waste transfer stations in the South Bronx. The polygon intersection method adds the population of each Census Block or Census Block Group within the selected buffer distance, or that intersect the buffer.

Figure 4 shows what happens when the edges of the buffer intersect Census Blocks or Census Block Groups that are relatively large compared to those in the interior of the buffer. Looking at these results, we may ask, “Is a large error created by selecting a substantial area which is really further away than implied by the buffer distance?” The reality is that some of the Blocks or Block Groups...
Groups are larger because they are sparsely populated or unpopulated.\textsuperscript{14}

Clearly, using this method of buffering overestimates the population.

The Areal Interpolation Method

The areal interpolation method is considered the most accurate of the three GIS methods. The most common way of doing areal interpolation is the area-weighted interpolation. The use of the method is based on an assumption that populations within the Census units (Blocks or Block Groups) are uniformly distributed. Figure 5 shows how this method is applied to waste transfer stations in the South Bronx.

In order to compute the characteristics of the population around the waste transfer stations using the areal interpolation method, we constructed models (a graphical tool for computer programming) that carry out the necessary steps in an automatic manner. For each Census Block or Block Group, we were able to calculate the ratio of the area included in the buffer to the total area of the Block or Block Group. This enabled us to calculate the portion of the population in a Block or Block Group that was within the buffer, as well as the number of Blacks and Hispanics, and additional socioeconomic variables of interest.

However, the assumption of uniform distribution of population is not valid in the area that is the focus of this study.\textsuperscript{15} Even a cursory examination of the Census data for the Blocks and Block Groups that make up the buffers we created support this fact. As Figure 6 shows, a number of Blocks or Block Groups near the waste transfer stations are zoned for commercial or industrial use, or contain parks and have population only at the edges of


\textsuperscript{15} See Naphtali, Z. 2004 (ibid.) for a more detailed discussion of the non-uniform distribution of the population in the areas close to the waste transfer stations in a section on “unpopulated” Census Blocks and Block Groups.
The Blocks or Block Groups.\textsuperscript{16} (There were, however, only a few Blocks or Block Groups that contained only parks with no population.)

The Polygon Containment Method

The polygon containment method underestimates population. This method only includes those Census units that are entirely within the selected buffer distance (in this case 1/4 mile) in estimating population. As Figure 7 shows, it excludes the Census units that are not contained by the buffer. Note that when the polygon containment method was applied to Census Block Groups, buffering five putrescible waste transfer stations, the 1/4-mile radius buffer did not contain any Census Block Groups.

A variation on the polygon containment method is a method provided by ArcGIS in which the centroid\textsuperscript{17} of each polygon is used to determine if it is included within the buffer, instead of requiring the entire polygon to be within the buffer. This method is not illustrated in this article.

EXAMPLES OF SENSITIVITY ANALYSIS: COMPARING THREE METHODS FOR ESTIMATING POPULATION CHARACTERISTICS

Sensitivity Analysis for Estimating Population & Percent Black & Hispanic

The first example, summarized in Figure 8 on p. 28, with details in the Appendix tables referenced at the end of this article, compares estimates obtained using the three GIS methods described above for total population and for estimates of the percentage of Hispanics and Blacks living within buffers around five putrescible waste transfer stations. The results show important differences among the three methods. For example, for the total population estimates within a one-mile buffer around the waste transfer stations, the values range from 160,081 (polygon containment method) to 199,721 (polygon intersection method). For the estimates of the Hispanic and Black population, the differences in the estimates are less pronounced, but slight differences appear. The polygon containment method estimates that 67.3\% of the population living within one-mile buffers around the waste transfer stations is Hispanic whereas the estimate using the polygon intersection method is 66.0\%. The areal intersection method estimate for Hispanics is somewhere between the other two estimates: 66.6\%.

Sensitivity Analysis for Estimating Median Household Income

The second example uses the three GIS methods to estimate median

\textsuperscript{16} The map in Figure 6 was taken from a paper submitted by Nicole Dooskin and Nick Molinari as a final report in an Advanced GIS class, spring 2005.

\textsuperscript{17} Informally, the centroid is the average of all points that make up an object or area, in this case a polygon.
household income for the population within different sized buffers around waste transfer stations in the South Bronx. The results are summarized in Figure 9 with details shown in the Appendix tables referenced at the end of this article. In this case, the differences are relevant for some buffers but not for others. The polygon containment method is not applicable for a buffer of 1/4 of a mile since no Block Groups are included within those buffers. For the 3/4-mile buffers, the polygon intersection and areal interpolation methods produce the same result ($19,500), but the polygon containment method produces a slightly higher value ($20,000). For the one-mile buffers, all three methods produce the same estimate.

CONCLUSION
GIS is a critically important approach to evaluating environmental justice conditions around waste transfer stations and other facilities that are associated with pollution emissions. There are a number of different ways of applying GIS, and thus, it is important to conduct a sensitivity analysis to determine the most appropriate method and to choose a meaningful size for a buffer zone.

ACKNOWLEDGEMENT
The work presented in this article was supported by the South Bronx Environmental Health and Policy Study, a project funded with a Congressional Appropriation sponsored by Congressman José E. Serrano and administered through the U.S. Environmental Protection Agency under grant number 9821520-03. The views expressed in this article are those of the authors, and do not necessarily reflect the views of the EPA.

Editor’s Note
Appendix tables containing additional data relating to these analyses are included with the online version of this article, available at www.nyu.edu/its/pubs/connect/spring07/.

Zvia Segal Naphtali, PhD, is a research scientist at the Institute for Civil Infrastructure Systems (ICIS), a multidisciplinary research institute affiliated with NYU’s Wagner Graduate School of Public Service. An Adjunct Clinical Assistant Professor of Public Administration, Dr. Naphtali teaches three courses yearly on spatial analysis and the applications of Geographic Information Systems in urban planning, environmental justice, and health.

Carlos Restrepo, PhD, is project manager for the ICIS component of the South Bronx Environmental Health and Policy Study and a research scientist at ICIS. His areas of research include infrastructure security, environmental policy, and sustainable development.

Rae Zimmerman, PhD, is Professor of Planning and Public Administration at NYU’s Wagner School, and Director of ICIS. Her research and teaching areas are environmental protection, infrastructure security, risk analysis and risk management, and natural hazards.
Roaming into the Future
The Ever-Evolving NYURoam Wireless Network

By Carlo Cernivani
carlo.cernivani@nyu.edu

When NYU’s Information Technology Services (ITS) embarked on a new generation of data networking by launching the first version of the NYURoam wireless network in 2003, we were confident that wireless networking would be embraced by the NYU community. We predicted that it would evolve from a merely “interesting” way to access NYU-NET resources and the Internet into a service that functioned as an integral part of day-to-day work and studies here at the University.

As anticipated, demand for the NYURoam service has increased steadily since the service’s inception. Keeping pace with the demand, ITS has enabled wireless access at an ever-increasing number of locations around the Washington Square campus, and at quite a few off-campus locations, including at the NYU College of Dentistry facilities and the NYU campus in Florence, Italy (and soon at NYU’s facilities in London). Several buildings at the Square are now at least 90% enabled with NYURoam coverage, including the Kimmel Center, Bobst Library, Warren Weaver Hall, 19 University Place, 194 Mercer Street, and Furman Hall. We conservatively estimate that NYURoam now provides over 2,000,000 square feet of wireless network coverage. (A complete list of NYURoam’s coverage areas is available at www.nyu.edu/its/wireless/locations/.)

We can quantify the remarkable growth of NYURoam in a variety of ways. Whereas, in its early years, the amount of traffic on the network used to measure on the order of a few hundred gigabytes each month, we recently exceeded eight terabytes (8.5 TB in March 2007, to be exact). The installation of additional wireless access points (APs) to augment our coverage also continues at a steady pace. ITS currently manages more than 900 APs, and we anticipate reaching the 1,000 AP mark in fall 2007.

By virtually every measure, the service has grown in both scope and use, including the number of wireless users, the service’s coverage area, data throughput, and bandwidth utilization. Even with this evidence of the NYURoam service’s success, however, there is always room for further improvement and expansion. Until recently, the NYURoam network had three known shortcomings:

1. **Guest Access**
   Many visitors to the University show up with a WiFi-enabled device and the desire or need to gain access to the Internet on campus. Until recently, ITS was forced to manually set up “guest networks” in specific locations on a per-event or per-visit basis. Clearly, this was not a scalable solution for a University as large as NYU, and a network as expansive as NYURoam.

2. **PDA Access**
   PDAs and handheld devices have long been somewhat neglected in the wireless arena. Until recently, NYURoam’s security-centric access methods limited the ability of many people with PDAs and handheld devices to use the service. Access to the network via PDA was not a fully ITS-supported service, and was only available to those whose PDAs had a LEAP (Lightweight Extensible Authentication Protocol) security client or commercial VPN (Virtual Private Network) software.

3. **Access for IEEE 802.1x Authenticated Windows Computers**
   An authentication and encryption method based on the IEEE 802.1x security standard for Windows computers was initially unavailable.

---

to people using NYURoam, and was subsequently limited by the need to significantly update the NYURoam infrastructure. This forced people with non-Cisco Windows WiFi clients to use proprietary VPN software to both authenticate and secure their wireless connections. Although ITS made this VPN software available free of charge to the NYU community, it still presented a distribution challenge and some operational issues for these people.

To address the aforementioned shortcomings, ITS recently added the following networks to NYURoam.

**NYUGUEST**

The new “nyuguest” network provides campus-wide access at all NYURoam coverage locations for all visitors to the University. This scalable new service can handle individuals and group events, such as seminars, conferences, and vendor fairs. Unlike NYURoam’s other wireless networks, which have a different security model in place, access to nyuguest is controlled by security gateway devices (Cisco Clean Access servers).

No special security software needs to be running on a visitor’s computer to use nyuguest; all visitors need is an 802.11b or 802.11g WiFi-enabled computer or PDA, any web browser, and a temporary guest account to authenticate onto the service. Informaton on how to request a guest account and connect to nyuguest is available on the NYURoam website at www.nyu.edu/its/wireless/guest/.

**NYUPDA**

The new “nyupda” network provides access for all WiFi-enabled Windows CE and Palm OS handheld devices. Like nyuguest, this service utilizes the Cisco Clean Access servers, and the connection process is identical. A valid NYU NetID is required in order to authenticate onto the network (for this reason nyuguest accounts will not work on the nyupda network; guests should use the nyuguest network instead). See www.nyu.edu/its/wireless/pda/ for instructions on using nyupda.

**NYU**

The new “nyu” network is perhaps the most exciting of the recent NYURoam developments. It provides one convenient method of access to the NYURoam network for nearly all laptop computers (see the NYURoam website for details: www.nyu.edu/its/wireless/requirements/), and offers a variety of enhancements, described below.

Setting up your laptop to use the new nyu network is quick and easy, as described at www.nyu.edu/its/wireless/configure/. ITS encourages all community members with eligible computers to switch to the nyu network. Nonetheless, the NYU-ROAM1, NYU-ROAM2 & NYU-ROAM3 networks that the NYU community has been using in the past to connect to NYURoam will remain operational for the foreseeable future, easing this transition.

Following are some of the key enhancements offered by the nyu network:

- Windows computer owners will no longer need to use a VPN client to authenticate and encrypt their wireless data.
- The nyu network supports both the IEEE WPA and the IEEE WPA2 (802.11i) security standards. (Note that the WPA2 standard employs the Advanced Encryption Standard (AES), providing the most secure data encryption available. If your computer supports WPA2 you are encouraged to use the nyu network and leverage the strong security model it provides.)
- Windows owners will enjoy the benefit of a “one-time sign-on.” Once you’ve configured your laptop properly and signed onto the nyu network for the first time, you won’t have to enter your NYU NetID and password again (until it’s time to change the password you use with your NetID, when you’ll be prompted to sign in with the new password). Whenever you are in range of the nyu network, your Windows computer will automatically sign you in, thus providing seamless, immediate NYURoam access.
- Apple computer owners with AirPort Extreme wireless cards who make the switch to the nyu network will benefit from the enhanced security it offers.

As an additional improvement, ITS is currently in the latter stages of an effort to outfit all of the existing NYURoam wireless access points (APs) with IEEE 802.11a standard, 5 GHz radios. As of early April 2007, approximately 75% of our APs have been updated; in the near future, we’ll have enabled these new radios throughout the entire NYURoam network. These updated APs are functionally identical to the existing 802.11b/g radios, supporting all of the same networks and access methodologies, but offer multiple technical benefits, including the possibility of better radio performance, since they use a less congested radio frequency than the more popular 802.11b/g technology. Please refer to the NYURoam website (www.nyu.edu/its/wireless/) for updates on the 802.11a service rollout.

The NYURoam wireless network has undergone a significant evolution over the past four years, but we here at ITS—and those in the networking industry in general—believe that we’re still in the early days of wireless data networking and wireless services. This technology offers seemingly boundless possibilities, and ITS will continue to dedicate itself to bringing the improvements that emerge to the NYU community.

---

Carlo Cernivani is a Senior Project Manager at ITS Communications and Computing Services and manages the NYURoam wireless network.
Have you ever wished that you could shop for products for work in the same way that you shop online for yourself at home? Wish no more: NYU’s Purchasing Services has just launched the new i-Buy system, an e-commerce portal that supplements the existing e-Requisitioning System (e-Req) and brings a self-service shopping cart experience to NYU departments.

Prior to i-Buy, there were a variety of ways to purchase supplies at NYU, all of which required some amount of paperwork and record-keeping, including:

- Buying the item(s) at your own expense and being reimbursed
- Using e-Req to initiate a Purchase Order
- Using a “Pcard” (Purchasing-issued credit card) and managing the supporting documents
- Issuing a Small Dollar Order and handling the follow-up paperwork

Using these methods, NYU departments spent more than $400 million dollars on products and services last year. This amount of purchase power, when properly harnessed, can be used by Purchasing Services to negotiate better discounts and/or improved services for the University, and that is part of what i-Buy will provide. i-Buy is not intended to replace the options described above (you can continue to use the old methods if you wish), but to supplement them with a convenient, full-featured new option. In addition to creating a quick and convenient shopping experience for you, when you place an order through i-Buy, the system automatically uploads your purchasing information to e-Req and NYU’s financial system, fame. This substantially reduces payment handling by Accounts Payable.

In addition to its convenience, i-Buy offers a very diverse marketplace—with millions of product options, including technology, furniture, office supplies, books, and more—that will continue to grow.

For these purchases, while also capturing data that can improve NYU’s ability to negotiate discounts. In addition, enabling departments to make their own decisions about purchases without Purchasing Services’ intervention allows Purchasing Services to focus on contract development and on expanding the array of suppliers available through i-Buy.

**SIMPLE, SECURE & STREAMLINED**

i-Buy provides convenient access to a wide range of suppliers through a single, secure log-on. This enables one-stop shopping by eliminating the need to sign into individual suppliers’ websites, and instead presents you with a virtual shopping mall of customized websites providing discounted pricing for the NYU community. When you shop in the i-Buy marketplace, you fill one virtual shopping cart with products from many suppliers, and when you check out, the system automatically creates detailed Purchase Requisitions for each supplier. Once your department’s administrator approves the Purchase Requisition, a Purchase Order will be transmitted directly to the supplier (without handling by Purchasing Services). Your order can then be tracked via e-Req, as it would be with any other Purchase Requisition or Purchase Order. This automated process eliminates the need for each NYU office to maintain purchasing documents.

In addition to its convenience, i-Buy offers a very diverse marketplace—with millions of product options, including technology, furniture, office supplies, books, and more—that will continue to grow. Some of the suppliers already enabled include Applied Biosystems, Barnes & Noble, B&H Photo, Bio-Rad Labs, CDW, DS&D, Dell, Fisher Scientific, GovConnection, Invitrogen, New England Biolabs, Roche Diagnostics, Sigma-Aldrich, Staples, and VWR Scientific. i-Buy provides access to these and other approved suppliers through a single, secure log-on. This enables one-stop shopping by eliminating the need to sign into individual suppliers’ websites, and instead presents you with a virtual shopping mall of customized websites providing discounted pricing for the NYU community. When you shop in the i-Buy marketplace, you fill one virtual shopping cart with products from many suppliers, and when you check out, the system automatically creates detailed Purchase Requisitions for each supplier. Once your department’s administrator approves the Purchase Requisition, a Purchase Order will be transmitted directly to the supplier (without handling by Purchasing Services). Your order can then be tracked via e-Req, as it would be with any other Purchase Requisition or Purchase Order. This automated process eliminates the need for each NYU office to maintain purchasing documents.

In addition to its convenience, i-Buy offers a very diverse marketplace—with millions of product options, including technology, furniture, office supplies, books, and more—that will continue to grow. Some of the suppliers already enabled include Applied Biosystems, Barnes & Noble, B&H Photo, Bio-Rad Labs, CDW, DS&D, Dell, Fisher Scientific, GovConnection, Invitrogen, New England Biolabs, Roche Diagnostics, Sigma-Aldrich, Staples, and VWR Scientific. i-Buy provides access to these and other approved suppliers through a single, secure log-on. This enables one-stop shopping by eliminating the need to sign into individual suppliers’ websites, and instead presents you with a virtual shopping mall of customized websites providing discounted pricing for the NYU community. When you shop in the i-Buy marketplace, you fill one virtual shopping cart with products from many suppliers, and when you check out, the system automatically creates detailed Purchase Requisitions for each supplier. Once your department’s administrator approves the Purchase Requisition, a Purchase Order will be transmitted directly to the supplier (without handling by Purchasing Services). Your order can then be tracked via e-Req, as it would be with any other Purchase Requisition or Purchase Order. This automated process eliminates the need for each NYU office to maintain purchasing documents.
suppliers via customized websites (known as "punchouts") that launch when selected within the system. For example, if you’ve been using the Staples website in the past to place your orders, you’ll find that you can access the same site through i-Buy, and that it now integrates with the e-Req System to create Purchase Requisitions. Suppliers without punchout capabilities, referred to as hosted suppliers (mostly scientific suppliers), use online catalogs to show their products.

According to John Jagard, the Director of NYU’s Purchasing Services, the average i-Buy order takes just a few minutes to complete. The system also has the advantages of eliminating paperwork and the potential for data entry errors, and provides handy tools for storing a list of your favorite items and comparing prices. There is no minimum or maximum limit on the amount you may spend through i-Buy, aside from any limits established by your department. Nor are there any restrictions on which supplier you choose to purchase your item(s) from, so long as they’re included in the i-Buy marketplace. This gives you the freedom to choose what to buy, from whom to buy it, and how much to spend.

**GETTING STARTED**

i-Buy is designed to be easy to use, and builds on the familiarity many NYU community members already have with the popular e-Req System. Access to the NYU e-Req System does not, however, necessarily mean automatic access to i-Buy. If the i-Buy icon does not appear on the Main Menu of e-Req when you log in, you can contact your department’s e-Req System administrator to request access. Decisions about access will be made by your department. Once you have permission to use i-Buy, you can access the system from e-Req or via the Purchasing Services channel within the Work tab of NYUHome (http://home.nyu.edu/).

To assist NYU departments in using i-Buy, Purchasing Services has launched a detailed and easy-to-use online tutorial. You can access the i-Buy Tutorial and additional information about the system via the Purchasing Services website at www.nyu.edu/purchasing.services/ or via the “Get Help” button within e-Req. In addition to i-Buy, Purchasing Services released a redesigned version of the e-Req System at the beginning of the Spring 2007 semester, featuring a new look, improved navigation and usability, and convenient access to i-Buy.

If you have questions about i-Buy, please contact your departmental e-Req administrator, or send email to purchasing.info@nyu.edu.

Kate Monahan is Editor of Connect: Information Technology at NYU.
NYU Meeting Maker
A Brief Look at Version 8.6

By Christian Grewell & Jie Zhang
christian.grewell@nyu.edu; jie@nyu.edu

Meeting Maker is a collaborative calendar and group scheduling software package provided by ITS to NYU faculty and staff. Meeting Maker makes it easy to schedule meetings, invite attendees, plan activities, keep a prioritized to-do list, and coordinate your calendar with other NYU faculty and staff members who use Meeting Maker. Currently, there are approximately two thousand active NYU Meeting Maker accounts, and new accounts are created almost every day. The recently released version of Meeting Maker, 8.6, provides a host of new capabilities and improvements.

Notable Features & Improvements
Web-Based Calendar
With the earlier version of Meeting Maker, so long as you had an Internet connection and a computer on which Meeting Maker client software had been installed, you could access your calendar from just about anywhere in the world. With Meeting Maker 8.6, you have both an updated version of the client software and a new web-based interface, offering many of the same functions, and giving you quick access to your calendar from computers on which the Meeting Maker client has not been installed. With this new feature, you can log into your calendar from any computer with an Internet connection—at work, at home, or while traveling by simply clicking a link in the Meeting Maker channel in your NYUHome Work tab.

Wireless Calendar Synchronization
You can wirelessly synchronize your PDA Calendar, Contacts, and To-Dos with your Meeting Maker 8.6 account if you have an NYU-issued PDA. Supported PDAs include Blackberries and Palm Treos (and in the near future, Windows Mobile Smartphones). Synchronization is seamless and occurs automatically as long as there is a wireless signal on the PDA. You can even accept or decline meeting invitations from your PDA. (If you own a non-NYU PDA, send email to meetingmaker.request@nyu.edu for information.)

NetID & NYUHome Password
As another convenience, you’ll log into Meeting Maker 8.6 using the same NetID and password that you use to log in to NYUHome—no need to remember a separate login and password for your individual Meeting Maker account. (Accounts set up for facilities like meeting rooms and other resources, rather than for individuals, will still have their own separate logins and passwords.)

How to Request a New Account
All NYU faculty and staff members with an activated NYUHome account are eligible for a free Meeting Maker account. NYU students are generally not eligible for these accounts, but departmental administrators may sponsor a student who is a part-time NYU employee if Meeting Maker will be required in the course of their NYU employment responsibilities.

You can apply for a Meeting Maker account by sending an email message containing your full name and NYU NetID to meetingmaker.request@nyu.edu (or by using the contact form within the Ask ITS section of NYUHome).

Additional Features & Improvements
Following is an overview of some of the other features and improvements included in Meeting Maker 8.6.

• Group Views
View the availability and schedules of teams or groups of people in a single window.

• iCalendar Support
Use iCalendar to send meeting invitations to people and calendars outside of your organization.
The New Meeting Maker Interface

- **Meeting Auto Selector**
  Automatically select the next timeslot when all attendees are available.

- **Proxy Access**
  View coworker calendars in a side-by-side view with your own.

- **Real-time Meeting Invitations**
  Allows you to schedule meetings and have the attendees notified immediately.

- **Recurring Meetings**
  Schedule customized recurring meetings: daily, weekly, bi-weekly, monthly, etc.

- **Resource Scheduling**
  Reserve conference rooms, A/V equipment, and other shared resources for your meeting.

- **Calendar Navigator**
  Easily select a date to view.

- **Customized Views**
  Customize your calendar with colors and labels, various layouts, and numerous viewing options.

- **Direct Event Editing**
  Edit your activities and meetings directly in the daily view.

- **Intuitive GUI & Functionality**
  Makes it easy to learn and continue to use Meeting Maker.

- **Event Creation**
  Create activities, banners (i.e., vacations, birthdays, etc.) and to-do items for yourself.

- **Font Customization**
  Adjust the font type and size in the main calendar view based on your preference.

- **Multiple Calendar Views**
  View your calendar in day, week, month, or text views.

- **Pencil-in Events**
  Proposed meetings automatically populate your calendar where they can be directly accepted or declined.

- **Printable Formats**
  Print your calendar out using common printout forms.

- **Recurring Banners**
  Set standard banners to display on a daily, weekly, or monthly basis.

- **Time Zone Support**
  Adjusts automatically to any of the 319 time zones around the world.

(Source for these feature descriptions: www.peoplecube.com/products/meetingmaker/features_benefits.cfm)

Christian Grewell and Jie Zhang are IT Support Analysts for ITS Client Services’ Desktop Support Services.
Online digital imaging databases are quickly becoming the standard technology of art history departments at universities across the country, thanks in part to recent improvements in usability, software, and hardware. Most digital imaging solutions currently in use offer versatile tools for displaying images, the ability to share images and textual data, and the security of routine database backups.

Institutions that employ digital imaging solutions enjoy many benefits, both inside and outside of the classroom, in comparison with older methods of image storage and display (such as slides). To date, however, there are no significant studies of the impacts of online digital imaging databases on art history education. Research in this area has tended to focus primarily on specific brands of software and their functionality, and how the technology has changed teaching practices, but little attention has been directed toward the effects of digital imaging solutions on learning.

In a recent study, therefore, I set out to examine whether using online digital imaging technology in the presentation of material can improve students’ scores on an art history survey.

**Comparing Presentation Technologies & Learning**

My study compared the answers of 30 undergraduate and graduate students to a set of questions about art history material presented under two circumstances: as traditional analog slides and as digital images accessed from within Insight, NYU’s digital image database. Each student was first shown a series of five images presented on slides. As each image was displayed, the student was asked to answer two questions about it, one question tapping visual information in the image itself, the other tapping textual information accompanying the image. (See the figures and tables that accompany this article for examples of the images, associated textual information, and survey questions that were used.)

The student was then shown the same five images, but from within

---

1. www.artstor.org/info/about/faq.jsp
2. See www.nyu.edu/its/luna/ for details about Luna Insight.
the Insight digital image database, and was asked to answer the same set of questions as each image was displayed. Their answers to the two sets of questions were then scored and compared. Answers were scored satisfactory or non-satisfactory. For each question, a set of acceptable terms had been selected prior to the study; if a subject stated any or all of the pre-selected terms, his or her answer was considered satisfactory. The minimum score was 0 and the maximum score was 10. No personal information was collected during the comparative surveys.

I had hypothesized that the students’ scores on the questions associated with the digital images would be significantly higher than those for the analog slides. Scores for the analog slides had a mean of 4.87, while those for the digital images had a mean of 8.54. Results of a one-tailed t-test, used to evaluate the difference between these means, yielded a P value of less than .05, indicating that the difference was indeed statistically significant.

The results of my study suggest that students will perform better on art history tests when digital imaging tools are available. An examination of the students’ responses to the survey questions when the analog slides were used showed that most subjects scored poorly on the questions that dealt with visual information. This suggested that students might not have been able to make use of all the visual information in the slides because they simply couldn’t perceive it. In comparison, Insight’s digital imaging technology provided additional tools (see figure below, left) that made this information visible to the students and enabled them to provide more complex answers to specifically detailed questions.

This is a universal and low-maintenance benefit of digital imaging, since with this technology, more information can potentially be extracted from nearly any image. In light of this, art history institutions that do not already have a digital imaging solution in place should consider acquiring this technology to ensure that the best educational experience is available to their scholars.

Scholars and administrators at NYU can contact the author for more information about using Luna Insight for their digital image collection needs. For the full methodology and results of this study, see the online version of this article at www.nyu.edu/its/pubs/connect/spring07/.

3. A t-test assesses whether the means of two groups are statistically different from each other. A one-tailed test was used because my hypothesis specified a directional difference.

4. In hypothesis testing, P is the probability that an observed difference between the intervention and control groups is due to chance alone if the null hypothesis—that there is no difference—is true. If P is less than the alpha-level (typically 0.01 or 0.05) chosen prior to the study, then the null hypothesis is rejected.
Webgrade: Final Grade Submission via the Internet
By Steve Rock

ITS is in the initial stages of developing, in collaboration with the University Registrar, a system known as Webgrade that will enable NYU faculty to submit final course grades via the Internet. The new system will expedite the end-of-semester grading process for instructors and make it possible for them to submit grades from the privacy of their office or home. It will also give administrators more control over the grading process, within a secure and reliable system.

Webgrade will be loosely based on a similar system used at the City University of New York (CUNY) schools, the source code for which Hunter College generously shared with NYU. ITS’ initial examination of the CUNY application revealed, however, that it will need to be significantly expanded and modified for use at NYU, since CUNY’s academic structure, grading systems, and computer systems are quite different from ours.

Once ITS completes a beta version of Webgrade, the University Registrar plans to pilot test the system with a small group of instructors. When the pilot stage has been completed, all faculty members who are listed in the Student Information System (SIS) as the primary instructors for their courses will be eligible to use Webgrade, along with designated administrators in some academic departments. The University Registrar will offer training for authorized faculty members and administrators, as the new system becomes available for their use, most likely sometime in the 2007/08 academic year. For more information about Webgrade, faculty and administrators may contact University Registrar Yechiel Rosenrauch at 212-998-4407.

Journal Entry Management System
By Raymond Lau

Journal Entry Management System (JEMS) is a web-based NYU Workflow application that facilitates the creation, approval, and validation of “Actuals” journal entries that are posted in the University’s general ledger system (known as fame, for Financial Administration Made Easier). Developed through a collaboration of the Controller’s Division and ITS, JEMS was launched in October 2006. It is used by a wide range of NYU community members, but particularly by administrators who are responsible for tracking, approving, and processing journal transactions.

JEMS replaced a manual, email-based process by which departments and schools across the University entered journal information into fame. By automating the routing of approval requests and other notifications at every step from start to finish, JEMS makes the processing of journal transactions more accessible, transparent, efficient, and accurate. Most important, all the requests and approvals for such transactions are captured in one centralized location within the NYU Workflow system.

As with many of NYU’s administrative applications, JEMS is accessible to authorized individuals through the Administrative Systems channel within the Work tab of NYUHome. If you would like to request access to JEMS, use the JEMS Access Form available on the Controller’s Division website: www.nyu.edu/cdv/site20/forms/fame.html. For more information about the system, send email to its.Adminhelp@nyu.edu.
Help Protect Your Email with SSL

Safer email is just a few clicks away! If you use an email program other than NYUHome to check your NYU Email, you should enable the Secure Sockets Layer (SSL) feature in your email program to help protect the privacy of your messages.

It’s easy to do, and very important.... Don’t delay, do it today! To learn how, visit the ITS website: www.nyu.edu/its/email/ssl/.

For more advice on what you can do to help keep your computer and personal information secure, browse the ITS Computer & Network Security website: www.nyu.edu/its/security/.