Focus online

NCSU Libraries
Volume 23 no. 3
2003

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TERRY CROW, NCSU LIBRARIES.

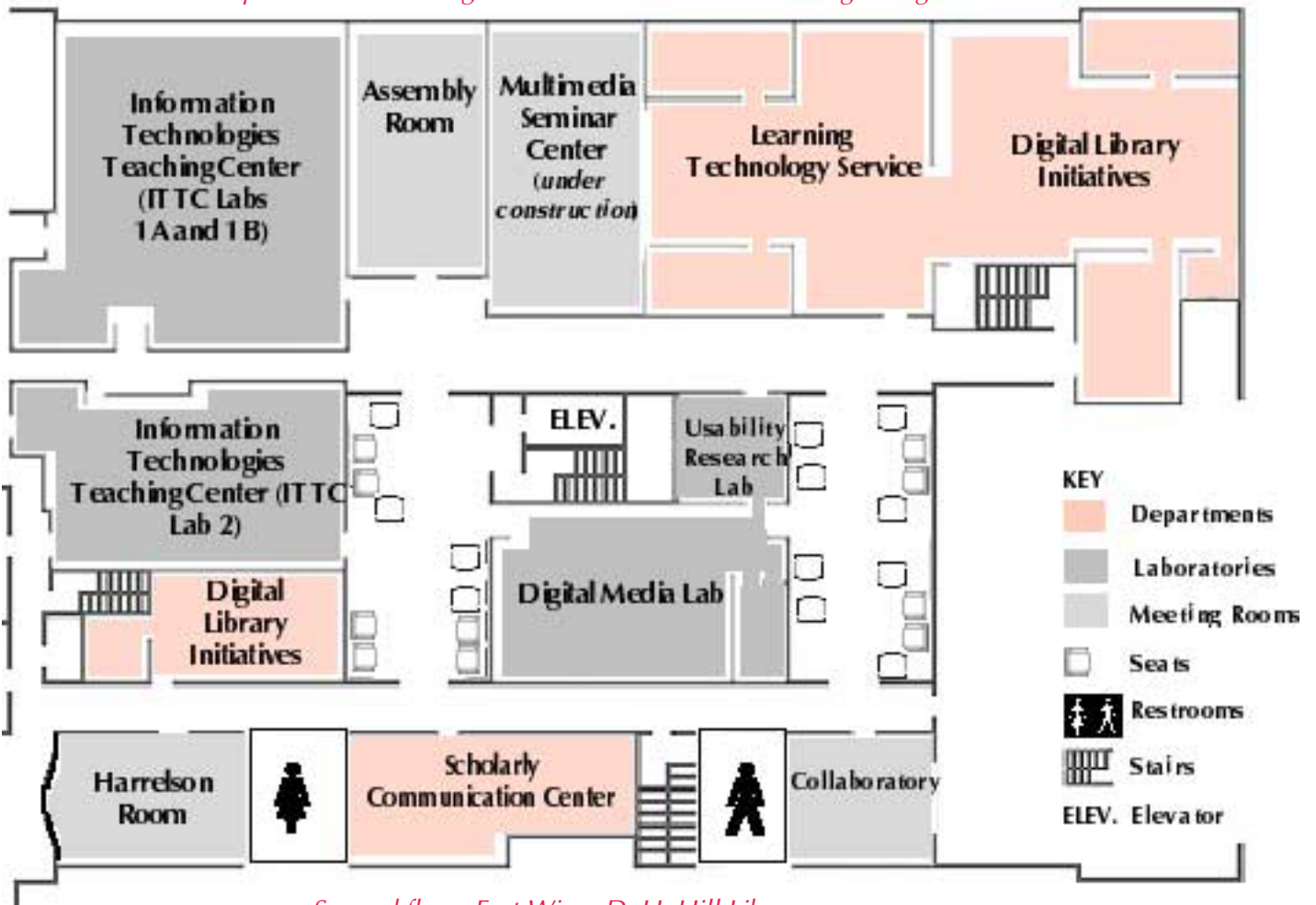Please direct queries or feedback about this issue to terry_crow@ncsu.edu.

Welcome to the Learning and Research Center for the Digital Age

By Carolyn Argentati, Public Services, and Kristin Antelman, Information

This is a landmark year for an initiative at the heart of both the NCSU Libraries' mission and its physical space, as the Libraries opens its Learning and Research Center for the Digital Age (LRCDA). This major renovation project, based on a vision formed more than a decade ago that recognized the potential impact of digital resources on higher education, as well as the expressed needs of faculty and students, has brought together a number of essential services and facilities to create a technologically rich environment of collaboration, discovery, and creativity. The LRCDA embodies important partnerships between the NCSU Libraries and other key campus units, primarily the university's Information Technology Division (ITD) and Distance Education and Learning Technology Applications (DELTA) organization. Staff from the Libraries, DELTA, and ITD will work together to provide technology training, consultation, and guidance in the development of digital materials for teaching and learning. With the opening of the LRCDA, the stage is set for developing many

Floor plan of the Learning and Research Center for the Digital Age.

Second floor, East Wing, D. H. Hill Library.

exciting initiatives on the forefront and at the nexus of the information technology, scholarly communication, instructional technology, and information science fields, while reaching into all disciplines with high-quality digital content and services. Information about the LRCDA may be found on the Web at **http://www.lib.ncsu.edu /administration/lrcda/index.html**.

The LRCDA components are:

- Digital Media Lab
- Usability Research Laboratory

- Information Technologies Teaching Center
- Scholarly Communication Center
- Learning Technology Service (DELTA)
- Digital Library Initiatives Department
- Special meeting rooms and facilities for LRCDA and library activities

The Faculty Center for Teaching and Learning within the Office of the Provost also continues to work closely with the LRCDA partners from its new location in Clark Hall. ❖

LRCDA: New Digital Media Lab

By Keith Morgan, Digital Library Initiatives

For the past several years, the NCSU Libraries has supported a small scanning lab where faculty, students, and staff could scan photographs and other images, documents, and microfilm and microfiche files. Images could be edited in Adobe Photoshop and documents either converted to Adobe PDF files or processed with optical character recognition software.

With the opening of the newly expanded and renovated Digital Media Lab (DML) in the Learning and Research Center for the Digital Age, the Libraries will provide the

BECKY KIRKLAND, NCSU.

The digital video workstation in the Digital Media Lab has the capability to import and edit both analog and digital video. Dual monitors allow editing and final sequences to be viewed simultaneously. To the left of the larger monitor is a digital camcorder, analog VCR, and flatbed scanner.

NC State community with access to even more sophisticated digital services. The DML can support users with a wide range of needs and experience. Faculty, students, and staff will discover an extensive range of options for inte-

grating digital materials to enrich teaching, learning, and research. Orientation and training for the novice and consultation for the expert will be available. The Learning Technology Service (LTS), through its on-site Faculty Devel-

opment Services group, will expand its ongoing support to faculty for online course creation and delivery by using the DML facilities. Digital Library Initiatives and other library staff will also be available for DML consultation, and new workshops and instructional materials, in addition to those currently offered in the nearby Information Technologies Teaching Center, will be offered to help faculty, students, and staff with all aspects of digital media.

The new DML comprises more than 1,000 square feet and makes available to the campus community twenty new Macintosh and Dell computers. Peripheral hardware attached to these workstations includes flatbed image scanners, slide and negative film scanners, fast document scanners, and a microform scanner. An expanded software suite to assist in the creation and development of digital objects for teaching and learning is accessible on some of the workstations. This software mix includes Adobe Photoshop 7.0, Adobe Acrobat 5.0, Omni Page Pro 12 OCR, Macromedia Studio MX, Easy CD, Toast, Helix Producer, and much more. The DML also has a Geographic Information Systems (GIS) workstation for public use. A color laser printer, black-and-white laser printer, and a large-format printer are available for use on a fee basis.

Digital Video and Audio Workstations

The DML provides access to digital video (DV) and digital audio workstations. These two computers are located in a separate room within the DML. This room is soundproof, and lighting can be controlled to create a studio setting where objects might be photographed or an interview conducted. Software on the DV station features Final Cut Pro, a nonlinear digital video-editing solution, and the Adobe Digital Video Collection, which includes Photoshop, Premiere, After Effects, and Illustrator. The DV station will accept input from digital camcorders, which can be edited and then saved to CD-R or DVD. Analog capture of clips from traditional VHS tape is also supported.

The audio-editing workstation permits the conversion of analog audiocassette files to various digital formats. Captured audio files can then be edited and converted to new digital formats such as QuickTime, RealAudio, or MP3.
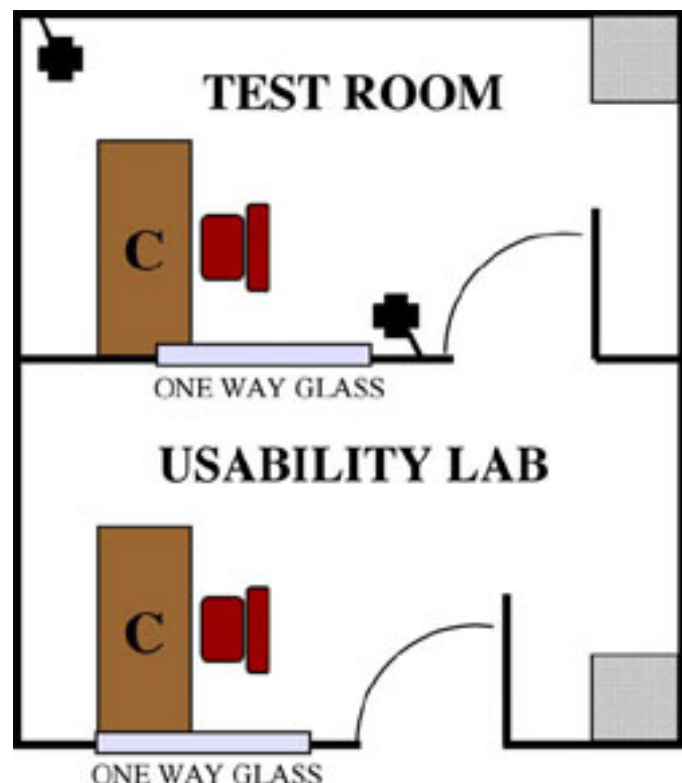
More information about the Digital Media Lab, including its hours of operation, is available on its Web site at **http://www.lib.ncsu.edu/ads/dml/**. ❖

LRCDA: Usability Research Laboratory

By Kelsey Libner, NCSU Libraries Fellow

The Usability Research Laboratory exists to help interested faculty, students, and staff learn the benefits of a user-centered approach to computer interface design and to support usability testing. As a test participant explores the functions of computer interfaces or online documents, special equipment in the lab can collect video, audio, and computer data generated in real time for observation and analysis. The lab has two separate rooms: one for observation and recording of the test session and another for the test participant.

The lab is available for use by instructors who assign their students to design and run usability

tests as part of class projects. It is also available to faculty, staff, and students in the campus community wishing to incorporate usability testing into their Web sites or course development processes. A variety of usability-testing methods can be selected and tailored to the resources and needs of each project.

The lab's Web site (**http://www.lib.ncsu.edu/dli/usability/**) provides a brief introduction to usability and links to resources on planning and carrying out tests. A selection of books on usability is available in the lab for visitors to learn more about user-centered design. Staff members in Digital Library Initiatives and the Learning Technology Service provide consultation.

With the Digital Media Lab on one side and the offices of the Learning Technology Service and Digital Library Initiatives Department on the other, the Usability Research Lab is well positioned to serve the research and development projects of the students, faculty, and staff of NC State. Please direct questions to the lab manager, Kelsey Libner, at (919) 513-0211 or send an electronic-mail message to **kelsey_libner@ncsu.edu**. ❖

LRCDA: Information Technologies Teaching Center

By Megan Oakleaf, Research and Information Services

HERMAN BERKHOFF, NCSU LIBRARIES.

The Information Technologies Teaching Center (ITTC) offers three teaching labs within the Learning and Research Center for the Digital Age (LRCDA) at the D. H. Hill Library. A total of forty-eight student computer stations and three instructor workstations with LCD projectors are used to provide hands-on instruction to NC State's students, faculty, and staff in some of the most advanced applications critical to research and education at the university.

In the ITTC, instructors from the Libraries, the Information Technology Division (ITD), and Distance Education and

Learning Technology Applications (DELTA) teach classes and conduct workshops using the latest software, hardware, and communication technologies. Subject specialist librarians teach students and faculty how to investigate topics related to their coursework and perform research using library resources. For example, chemistry students receive instruction in advanced research tools such as SciFinder Scholar, the online version of *Chemical Abstracts*, and Beilstein, a database that enables students to retrieve and display organic and inorganic chemical structures. In other classes, faculty and graduate students learn EndNote, citation management software that provides powerful tools to manage references and sources in a variety of publication formats. Additionally, technology training is offered by instructors from all three units.

The Learning Technology Service (LTS), a division of DELTA and a key LRCDA partner, offers many workshops about information and communication technologies in the ITTC. The training provided by LTS staff enables faculty members to design and develop Web pages using Macromedia Dreamweaver; use course management systems such as WebCT and WolfWare; create graphics and animations using Macromedia Fireworks, Flash, and Viewlet Builder; and use online quizzing and testing tools such as WebAssign and Hot Potatoes to support their courses. Seminars are also available on issues and challenges faced by instructors as they move part or all of their courses to the Web. In addition to providing training opportunities in the ITTC, consultants from the LTS assist faculty members in creating Web-enhanced and online courses, in applying instructional design principles to Web-based instruction, and in developing Internet-based distributed and distance-learning programs.

The Information Technologies Teaching Center provides a convenient, centralized location for NCSU students, faculty, and staff to combine the benefits of current technological innovations, staff expertise, and information resources in all formats to achieve excellence in teaching and learning. ❖

NCSU Libraries Wins Library of the Future Award

By Linda Saunders, Research and Information Services

The NCSU Libraries' newly enhanced tutorial LOBO (Library Online Basic Orientation) has received the 2003 American Library Association (ALA)/Information Today Library of the Future Award. The award will be presented to library representatives at the ALA annual conference in Toronto, Canada, in June. In addition to a framed citation of achievement, the Libraries will receive a check for $1,500. The award is given for "innovative planning for, applications of, or development of patron training programs about information technology in a library setting."

During summer 2002, NCSU librarians in the Research and Information Services Department collaborated with other library staff and with NC State English faculty to revise LOBO. LOBO uses several information technologies to help students learn the information literacy process. These features include keyword search strategy builders, citation builders, viewlets, and wizards. Viewlets are extremely compact movie files, which can demonstrate how to use a technology. Because viewlets are small, any dial-up user with a 56k modem can watch one within seconds. LOBO students watch annotated movies of catalog and database searches. Another new feature is a link to the "Ask A Librarian LIVE" virtual reference service, providing an interactive, real-time connection between students and reference librarians.

Tom Sloan, chair of the ALA award committee, cited these innovations as key to LOBO's selection for the award. He added, "The Jury also recognized that LOBO was developed through a partnership between librarians and freshmen composition instructors." ❖

LRCDA: Scholarly Communication Center

By Peggy Hoon, Scholarly Communication

Opening its doors in January 1998, the Scholarly Communication Center (SCC) was one of the first operational units of the Learning and Research Center for the Digital Age (LRCDA). Envisioned as a resource supporting the university's research and service goals, the SCC offers guidance to both the Libraries and NC State's faculty, students, and staff in matters relating to the dissemination and use of knowledge. Although other institutions have established centers for scholarly communication or copyright management staffed by an attorney, the SCC pioneered placement of such a unit in the academic library. The SCC, operating in close communication with NC State's Office of Legal Affairs, serves as the NCSU Libraries' primary resource on fair use and other copyright issues as they relate to library collections and services. Through workshops, colloquia, and individual consultation, the SCC helps faculty, students, and staff establish an understanding of fair use and offers access to information resources on scholarly communication, particularly those relating to licensing, intellectual property, copyright, and fair use. Importantly, the vice provost and director of Libraries and the SCC provide a voice for the Libraries and the university in helping to shape national policies relating to scholarly communication.

Over the past five years, the SCC has facilitated several major scholarly communication colloquia featuring nationally recognized speakers of interest to the NC State community as well as other colleagues in the Triangle. The scholarly communication librarian participated in development of the university copyright ownership policy at both the system and campus level and currently serves in an *ex-officio* status on the university Copyright Committee. Additionally, the SCC has actively developed and provided information on copyright and fair use, primarily through its Web presence.

Sample information resources available on the SCC Web site (**http://www.lib.ncsu.edu/scc/**) include a tutorial series on "Copyright Use," "Copyright Ownership at NC State" (a new tutorial), "Licensing Electronic Resources," and "Plagiarism"; a sample publishing agreement language; and a "Permissions Guide." Of special interest to the NC State community, LRCDA partners, and the world beyond is the new "TEACH Toolkit: An Online Resource for Understanding Copyright and Distance Education." This toolkit provides information and hands-on guidance for implementation of the Technology, Education, and Copyright Harmonization Act (TEACH), which updates copyright law pertaining to transmissions of performances and displays of copyrighted materials. Such transmissions are critical to current higher-education distance education efforts, including online courses.

With the opening of the unified space for the LRCDA, the Scholarly Communication Center is looking forward to enhanced collaboration with its LRCDA partners. The close proximity and interaction will facilitate the development of innovative services for the NCSU Libraries and its patrons. ❖

LRCDA: LTS Faculty Development Services Group

BY DONNA PETHERBRIDGE, FACULTY DEVELOPMENT SERVICES

The Learning Technology Service (LTS), a division of DELTA (Distance Education and Learning Technology Applications) is a service unit dedicated to providing NC State faculty, staff, and graduate students with support and resources in the area of teaching and learning with technology (TLT). The LTS consists of three groups: Faculty Development Services, focusing on faculty support and training for TLT activities; Online Instructional Programs, focusing on online program design and development; and Technology Development, focusing on technology infrastructure planning and implementation. The majority of the LTS staff resides in the Venture III building on NC State's Centennial Campus.

The Faculty Development Services group, as part of the integration of the LTS into the Learning and Research Center for the Digital Age (LRCDA), is now located in a newly renovated space on the second floor, East Wing, of the D. H. Hill Library, with offices adjacent to the Digital Library Initiatives Department. This move, which returns core LTS faculty support staff to the library near their former location, will enable Faculty Development Services to continue to provide NC State with technical training, seminars, and consultations from a more-centralized, easily accessible location.

Faculty Development Services provides faculty, staff, and graduate students with workshops and seminars to support TLT activities; hosts, in conjunction with the Libraries, an annual Summer Institute for faculty on TLT issues; runs the Instructional Technology Assistant program; and provides instructional house calls and custom training for faculty, staff, and students engaged in TLT activities. Learn more about the LTS Faculty Development Services group by visiting its Web site at **http://lts.ncsu.edu/facdev** or by sending an electronic-mail message to **learntech@ncsu.edu**. ❖

LRCDA: Digital Library Initiatives Department

BY STEVE MORRIS, DIGITAL LIBRARY INITIATIVES, AND KRISTIN ANTELMAN, INFORMATION TECHNOLOGY

The Digital Library Initiatives Department (DLI), formed in 1996 to further the NCSU Libraries' commitment to expanding digital library services and resources, consists of eight librarians and five technical and support staff who focus on metadata architecture, integration of library services into the curriculum, digital media services, and digitization of collections. In addition, the Libraries' Web Development Team, which supports the Libraries' public Web site (**http: //www.lib.ncsu.edu**) and staff Intranet, is located in the department.

Staff members of DLI work in close partnership with other library departments to identify opportunities for development of new, user-centered digital library services and collections. A close relationship with the Libraries' Systems Department ensures smooth transition of new tools and technologies from prototype to production. The department also works closely with the Learning Technology Service—a partnership which will be strengthened by the proximity of their offices in the new Learning and Research Center for the Digital Age—to manage research and development initiatives that integrate advanced Web-based and multimedia resources into teaching and learning at NC State. ❖

LRCDA: Meeting Rooms

Collaboratory

Located near the Digital Media Lab, the Collaboratory is a computer-equipped room designed to facilitate collaboration and discussion by small groups. Laptop computers and wireless networking are available, in addition to the desktop computers located in the room. Requests to schedule time in the Collaboratory may be made at the Digital Media Lab Web site (**http://www.lib.ncsu.edu/ads/dml/**) or by telephone (513-3855).

Assembly Room

The Assembly Room provides attractive and comfortable space for presentations related to the activities and initiatives of the LRCDA. It is equipped with an LCD projector.

Harrelson Room

The Harrelson Room is a conference room that is designated for meetings and activities organized by the NCSU Libraries and LRCDA staff. It is equipped with an LCD projector.

Multimedia Seminar Center

This space is planned as a presentation and seminar facility equipped with a range of state-of-the-art technologies that include interactive video-conferencing and multimedia presentation and display capabilities. Renovations will take place later in 2003 and 2004. ❖

NCSU Libraries Implements New ILMS

By Kristin Antelman,
Information Technology,
and Carolyn Argentati, Public Services

The wide range of library operations—from acquiring materials, to cataloging them, to making them available to users—is supported by complex and specialized software known as the Integrated Library Management System (ILMS). The online catalog is the part of the system visible to library users.

The NCSU Libraries has been running the Data Research Associates (DRA) system since fall 1993. In 2001 DRA, Inc., was acquired by a competitor, Sirsi Corporation. Sirsi subsequently dropped support for the DRA system in favor of continued development of its own system, Unicorn. After conducting an in-depth survey of the marketplace in early 2002, the Libraries determined that migrating to the Unicorn software would provide staff and library users with the best available functionality and that it could be implemented with minimal disruption to library operations and services.

Unicorn went live in the NCSU Libraries on February 3, 2003. Online catalog users will not notice a dramatic change. A few frequently requested new features have been added, however. Users can now limit searches by location (e.g., to search resources located in the Textiles Library) and by format (e.g., to search for journals or electronic resources). The flexibility of the Unicorn software will allow the library to introduce innovative enhancements in the future, such as personalization options, and will support better-integrated access to the Libraries' entire collection, both paper and electronic. ❖

[Left to right]
Alison Arnold, an adjunct faculty member with NC State's Department of Music, has worked with Keith Morgan of the library's Digital Library Initiatives to develop the electronic-music reserves for NC State students.

BECKY KIRKLAND, NCSU.

Music on Electronic Reserve at the NCSU Libraries

By Keith Morgan, Digital Library Initiatives

Until recently, any student who took a college or university course in music appreciation had much the same classroom requirements. Lectures would be accompanied by the playing of recorded music, and students would read and reflect on the assigned music. To review music first played in class, or to hear other musical compositions assigned as supplementary listening, the general method was to go to a library facility, either an audiovisual lab or reserves area, to listen to the music on headphones.

Technology has changed this aspect of study. Since the mid-1990s, the NCSU Libraries has offered Electronic Reserve Service for print, image, and textual materials. In February 2000 Department of Music professors Alison Arnold and Randolph Foy asked the Libraries whether providing access to musical compositions online was possible. After consultation among library staff from Public Services, the Scholarly Communication Center, and the Digital Library Initiatives Department, members of Digital Library Initiatives quickly moved to create a prototype service allowing students to access assigned musical files through the same digital system used for other print and electronic reserves.

From the Course Reserves Web page (http://www.lib.ncsu.edu/rbr/), students may enter either the course number or the name of their instructor. They are presented with a menu of reserve materials assigned to their course. From the variety of course reserve materials, generally journal articles, the student can also choose the option "Listen Online." Clicking on this link displays a page of various musical selections. Clicking on a selection begins to play the music. The files are provided in RealAudio format. To play the music, students must have RealPlayer software on their computers to begin the process

of "streaming" the media to their computers. Streaming media plays as it downloads. The computer starts by buffering or storing up some of the file in advance and then plays the buffered material even as it continues to download the file from the network. The Libraries selected the RealAudio format because the player is freely available and works on all computer operating systems and because streaming audio does not give the listener a permanent copy of the file. Without the ability to reproduce or further disseminate the work, this online performance of a work for educational purposes is analogous to traditional classroom performances as allowed by copyright law.

The electronic-music reserves pages can display a composer's name and a link to a selection, as in the example below:

Debussy
Prélude à l'après-midi d'un faun

Or, the instructor can provide a brief annotation to the selection, as in this example:

• Kerala, South India (1' 48")

• Nambudiri Brahmin priests recite Sanskrit hymns from the Rig Veda, the most sacred of Hindu texts dating from the 1st millennium BC. Syllables are recited on three adjacent pitches: high, middle, and low.

So far, 596 students in several different music courses have used the electronic-music reserve service. Foy, director of Orchestral Activities at NC State, comments that with electronic access to music, "students are able to complete the listening assignments for music history and literature in a convenient manner that also cuts the expense of course materials. Test results show that they do indeed use the service, and they see it as much more convenient than having to go to the Media Center." Indeed, in all end-of-semester surveys completed by students in these classes, the advantages of being able to listen to their assignments at home or in their dorm rooms have been consistently noted. The Libraries' electronic-music reserve service is an excellent example of the library's ongoing collaboration with faculty in the digital environment, aimed at giving students easy access to learning resources in all formats. ❖

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