

FY2004 Annual Report:
The Learning Technology Service



The Learning Technology Service supports faculty, staff and students in the use of technology for teaching and learning, with resources appropriate to each learning environment and each discipline. The LTS is committed to:

- Quality service
- High-quality production and products
- Responsible management of technology
- Increased instructional quality
- Increased access to education, and
- Improved learning

During FY04, two service groups were added to the LTS. After a major reorganization of DELTA at the end of last fiscal year, five combined services groups now comprise the LTS: Faculty Development Services, Media Distribution Services, Online Instructional Programs, Technology Development and Video Communication Services.

LTS Faculty Development Services (FacDev) provides training, consultations and resources in pedagogy, tools and technologies for faculty, staff, and graduate students engaged in teaching with technology (TLT).

LTS Media Distribution Services (DUBS) manufactures and distributes digital and analog distance education media products.

LTS Online Instructional Programs (OIP) collaborates with faculty and staff to design and develop effective, technology-rich learning materials by developing solutions consistent with instructional design principles and theory.

LTS Technology Development (TechDev) provides learning technology infrastructure for NC State, including learning management systems.

LTS Video Communication Services (VCS) provides a video production and broadcast infrastructure to offer educational opportunities at a distance to the NC State community.

MAJOR INITIATIVES

Learning in a Technology-Rich Environment

In 2002, "Learning In a Technology-Rich Environment" or LITRE was chosen as the topic for NC State's quality enhancement plan for reaffirmation of accreditation with the Southern Association of Colleges and Schools (SACS). The Learning Technology Service was heavily involved in the creation of this plan,

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from its leadership to event planning to production work to committee representation. Submitted to SACS in February of 2004, the plan (http://litre.ncsu.edu/pdf/litre_qep.pdf/) ultimately seeks to improve student learning at NC State through the use of technology for teaching and learning.

The two-year planning process is documented at: http://delta.ncsu.edu/litre_archive/index.cfm. The LTS anticipates continued involvement in and support of LITRE.

Digital Conversion Project

The LTS is investing in an end-to-end digital production process. Progress was made this year, but issues with the CRC Channel and the state budget hampered the ability of the LTS to invest fully in the conversion.

Moving to digital video (the ability to capture and transfer MPEG files) will bring the LTS closer to providing distance education content on DVD, in addition to opening new options for delivering content via the CRC Channel. Digital conversion also offers alternatives for less costly facility investments for distance education production, in the future.

A pilot project has begun, using an Anystream Agility system. While maintaining the existing Real Media to WolfWare production path, the Anystream Agility system allows the capture of MPEG file for DVD production (on MDS duplication equipment) and CRC Channel content delivery (via MPEG playlist streams to Time Warner Channel 18).

NC State's Next Generation Learning Management System

A campus-wide discussion on learning management systems led to the decision, in April of 2003, to begin investments in a next generation learning management system for NC State. During the discussions, which were hosted by the Teaching Learning Technology Roundtable (TLTR), needs were expressed by the NC State community, including:

- An easy-to-use system, including easy-to-manipulate content
- Easy-to-use teaching tools
- A pedagogically-rich instructional environment
- Meeting the needs of all learners
- Acquiring licenses that includes all NC State's learners
- Acquiring an LMS that is scaleable, interoperable and extensible
- Acquiring an LMS in which all students can be effectively supported
- Responsive technical support from vendors

The LTS acquired feedback from faculty, staff and students, given during the LMS Evaluation presentations, via the online LMS Evaluation survey, and from the LMS Faculty Advisory Committee. Information from and interaction with LMS vendors during the evaluation period impacted decision-making. DELTA's existing and future resources (funding and staff) for product purchase, development, maintenance and support were also considered.

Suggested action items that resulted from the campus discussions included:

- Supporting WebCT Campus Edition, including appropriate upgrades, until a transition is complete
- Supporting (actively) faculty and student engagement with WebCT
- Continuing maintenance of and development in WolfWare

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- Investing in WebCT Vista
- Purchasing WebCT Vista on or before July 2004
- Launching WebCT Vista by the summer of 2005
- Integrating (seamlessly) Vista and new versions of WolfWare

The campus selected products from WebCT, Inc. above other LMS products for the following reasons:

- New versions of WebCT appeared easier to use than current versions from both content development and instructional perspectives
- An upgrade, rather than a switch, of a product seemed more feasible for both NCSU faculty and students
- WebCT's products appear to be driven by teaching and learning goals.
- As a company, WebCT, Inc. appeared to respond to the instructional needs of its clients by offerings existing tools and by proactively developing new pedagogically rich tools.
- The content management system of Vista will reduce overhead associated with LMS course administration and promote collaboration.

In follow-up to the campus conversation, the Strategic LMS Implementation Committee (SLIC) was formed to develop and implement a plan for NC State's next generation learning management systems. For information about SLIC's ongoing activities, see: <http://delta.ncsu.edu/slic/>. SLIC is comprised of management subcommittees, functional subcommittees and project workgroups:

Oversight and Steering Subcommittees

The Oversight subcommittee established vision for NC State's next generation LMS as well as coordinated staffing, budgetary, and project management details. The Steering subcommittee provided tactical leadership and coordination for the functional subcommittees and project workgroups.

Functional Subcommittees

The Functional subcommittees were tasked with coordinating implementation efforts in the areas of accessibility, assessment, design, outreach, policy, technical operations, and training. Additional functional subcommittees will be added, as needed.

Project Workgroups

The Project workgroups focused on the actual implementation issues for each of the major Enterprise LMS projects (Integration Layer, Vista, and Centra). For more information, see the project workgroup structure and membership section later in this document.

Stakeholders

Primary stakeholders include the faculty, staff, and students of NC State, the colleges, Extension and Engagement, the Information Technologies Division, the NCSU Libraries, Registration and Records, and the UNC System. Secondary stakeholders are defined in the charters of each workgroup or subcommittee.

Outcomes

To ensure that NC State's next generation learning management system meets the educational and technical needs of our stakeholders, the LTS will:

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- Leverage economies of scale through the collaborative procurement and deployment of central LMS services to a wider audience, including other universities in the UNC System and external community partners associated with the Office of Extension and Engagement.
- Provide targeted instructional tools and support for developing effective technology rich learning environments that meet all learning styles and teaching methods.
- Enable self-paced learning and continuous assessment of student progress.
- Enhance student engagement by providing more flexible and efficient access to instruction in a manner that increases students' ability to access and utilize learning materials independently.
- Provide an adaptable plan for implementing reliable, comprehensive, and seamless technology services that focus on empowering teaching and learning activities.
- Provide services for legacy LMS's throughout the transition process from existing systems to the new combination of services and product offerings.

MAJOR ACCOMPLISHMENTS

- Provided leadership and support for "Learning in a Technology-Rich Environment," NC State's quality enhancement plan for reaffirmation of accreditation, submitted to the Southern Association of Colleges and Schools (SACS) in February 2004.
- Invested in NC State's next generation learning management system, including the purchase of a perpetual VISTA license (plus associated hardware and services). Established, restructured and expanded the Strategic LMS Implementation Committee (SLIC) in August of 2003, with representation across NC State.
- Purchased an MPEG/DVD digital media acquisition and distribution system to expand video-based capture and delivery infrastructure. This investment allows for expanded distance education content delivery, smoother integration within DELTA and university systems, and future enrollment growth.
- Developed, in collaboration with the Information Technology Division (ITD), a service level for basic support of WolfWare.
- Acquired permanent funding from the Educational and Technology Fee to pay for a portion of the yearly maintenance of WebCT's Vista.
- Reduced overall student, faculty and staff trouble calls about distance education content, delivered via CD, to very low levels. Reduced MDS errors to 1.18 calls per month.
- Significantly reduced CD shipping and production costs

CHALLENGES FOR THE COMING YEAR

- Finding appropriate & adequate funding sources for NC State's educational technology infrastructure
- Keeping up with needed learning technology investments, especially in outfitting the university's 111 classroom spaces to defined technology standards for distance education
- Addressing ongoing concerns about the infrastructure for and NC State's participation with the Cooperating Raleigh Colleges (CRC) Channel
- Acquiring long-term space for LTS staff and distance education classroom facilities

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FACULTY DEVELOPMENT SERVICES

During FY2004, Faculty Development Services experienced a substantive increase in custom training sessions and consulting services. This is in support of faculty's desire for one-to-one or custom instruction and assistance (Kaminski, 2000) and a concerted LTS effort to focus on alternative development opportunities for instructional staff.

Over the past three years, there has been a decline in regularly scheduled workshop unique participants and enrollments (approximately a 16% decline between FY2003 to FY2004). The difficulty of enticing faculty to attend regular scheduled workshops and events is noted in relevant literature (Rebaza, 1998). These issues have also be discussed among colleagues in the UNC system

Overall Participation Trends via Service Type

Year	Regular Training	Custom Training	Consulting Services	Total
2002	2093	177	NA	2270*
2003	1829	195	1101	3125
2004	1538	556	2150	4244

*consulting services were not tracked in FY2002

MISSION

Envisioning a campus where faculty have access to the tools, support and development opportunities to engage with technologies that facilitate excellence in learning and teaching, Faculty Development Services works collaboratively with faculty, staff and graduate students at NC State University to support teaching and learning with technology by providing online resources, instructional materials, workshops, customized training sessions, individual and hands-on instructional technology assistance, mentoring, and in-depth professional development programs.

OBJECTIVES

- Build support structures to encourage faculty, staff and graduate students to engage effectively with instructional technologies and learn best practices in teaching and learning with technology (TLT).
- Improve and enhance faculty engagement with instructional technologies by offering a variety of programs and services in support of TLT.
- Increase awareness of and expertise in pedagogically sound approaches to Internet-based distributed and distance education for the NC State University community and beyond.
- Increase efficiency, streamline services, and respond to technology trends in order to meet the needs of faculty, staff and graduate students who use instructional technologies.

PROGRAMS AND SERVICES

Faculty Development Services offers regularly scheduled, seminars and programs, customized workshops for groups, departments, and colleges, Instructional House Calls and walk-in consultations. Normal operational hours are 8 a.m. to 5 p.m. throughout the year, with some evening workshops and occasional consultations scheduled between 5-8 p.m. Offices are located in the Learning and Research

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Center for the Digital Age (LRCDA) on the second floor of the East Wing in D.H. Hill Library.

Key programs include: |

Workshops and Seminars (regularly scheduled). Every semester (Spring, Summer & Fall), FacDev offers a series of regularly scheduled workshops on the tools and methodology to support distributed and distance learning efforts. Part of our efforts are taped and then broadcast on the Cooperating Raleigh Colleges Channel (Time Warner Channel 18). Workshops are also available via the UNC TLT Training Compendium: <http://www.northcarolina.edu/content.php/ir/tltc/compendium/index.htm>.

FacDev completes regular, ongoing assessments of all workshops and seminars. Participants complete an online evaluation form, which records all responses in a database at the end of each workshop or seminar (both regularly scheduled and custom training). These assessments provide feedback on instructors and content, give opportunities for participants to suggest other workshops and programs that they would be interested in attending, and are used to evaluate instructors and plan future workshops and seminars. See <http://its.ncsu.edu/instruction/evaluation.html> for this assessment tool.

Custom Training. In addition to regularly scheduled workshops, FacDev provides customized training within the LTS- supported toolset for faculty, staff, and graduate students engaged in online instruction. Customized training includes hands on workshop sessions and seminars for faculty, overview sessions on our supported tools (e.g. WebCT) for students, and informational seminars for departments. FacDev will provide a single workshop or a series of workshops customized to meet the needs of a particular group. Time can be scheduled in the ITTC Labs or staff will go to other locations on campus. All customized training includes a needs assessment, the training itself, and follow-up with all participants.

Instructional House Calls & Help Desk Support. FacDev consultants assist faculty in a face-to-face setting in the faculty member's office or in our offices, providing support for the faculty member's instructional technology needs. Consultants maintain and monitor a Remedy (Help Desk) queue. In assessing these efforts, both volume of calls and quality of response is monitored, and the professionalism and timeliness in which these are handled is reflected in performance reviews of staff members.

The Summer Institute. The Teaching with Technology Summer Institute for Faculty is a way for faculty to learn about instructional technology tools and techniques that can be used to support teaching and learning at NC State. Faculty members learn about supported technologies and resources available to them on campus as well as specific technical skills that will facilitate the creation and publication of web-enhanced materials. Faculty members have the opportunity in the Summer Institute to discern what tools and techniques work best in his or her disciplinary context. To assess this program, participants complete both a pre-assessment and a post-assessment form. This data is used to measure changes in knowledge, skills and attitudes as a result of participation. Formative evaluation measures are built into the Summer Institute so that participants can provide feedback during the course of the Summer Institute. Program reports are available on the DELTA web site. As with assessment data gathered from workshops and seminars, program assessment data is used to improve future programs. Staff members from across the LTS support this program.

The Instructional Technology Assistant Program (ITAP). ITAP is offered by the LTS for NC State students and staff members who wish to gain expertise in the technology used to create web-supplemented or web-based classroom environments. The program is designed to help address the need

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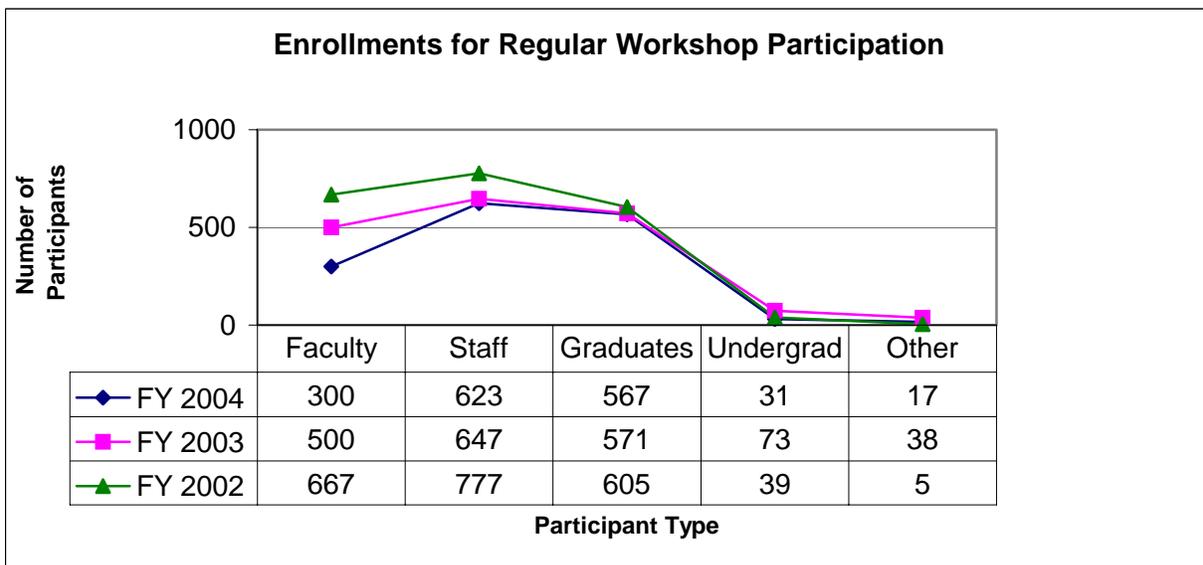
for local, college, and departmental technical support in instructional technology. For the purposes of assessment, the Instructional Technology Assistant Program (ITAP) has both participants and their faculty sponsors complete an evaluation of the program once participants have completed their projects. These assessments occur three times per year, in conjunction with the closure of the program for the semester's participants.

USAGE

The Workshop Registration System tracks regularly scheduled workshops and custom training sessions. FacDev tracks other programs via individual program tracking. Help desk calls are tracked through the campus Remedy system. Beginning July 1, 2003, FacDev began tracking our Instructional House Calls (which might entail a walk-in consultation, a visit to a faculty member's office, or a substantial e-mail or phone call) via internally developed tracking systems.

Workshops and Seminars (regularly scheduled)

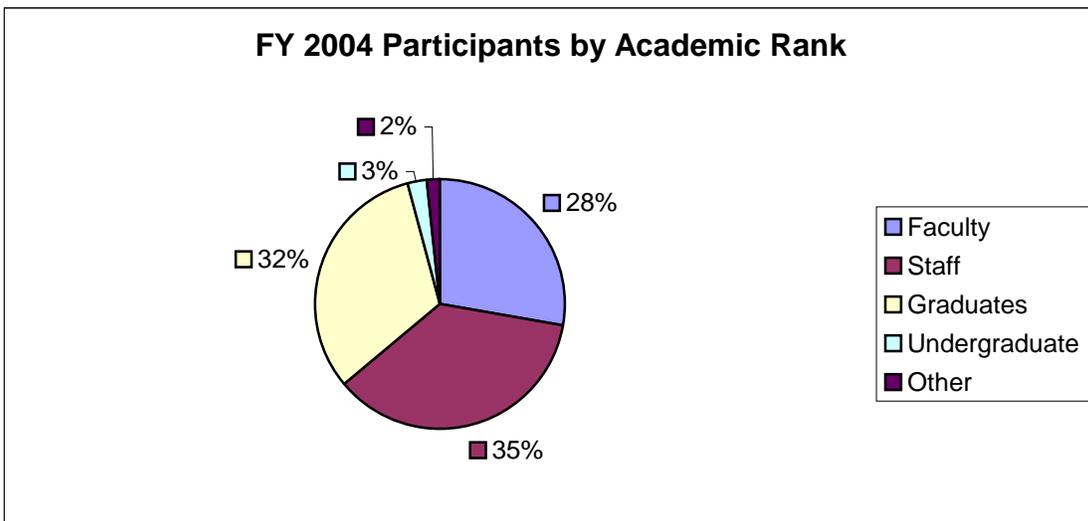
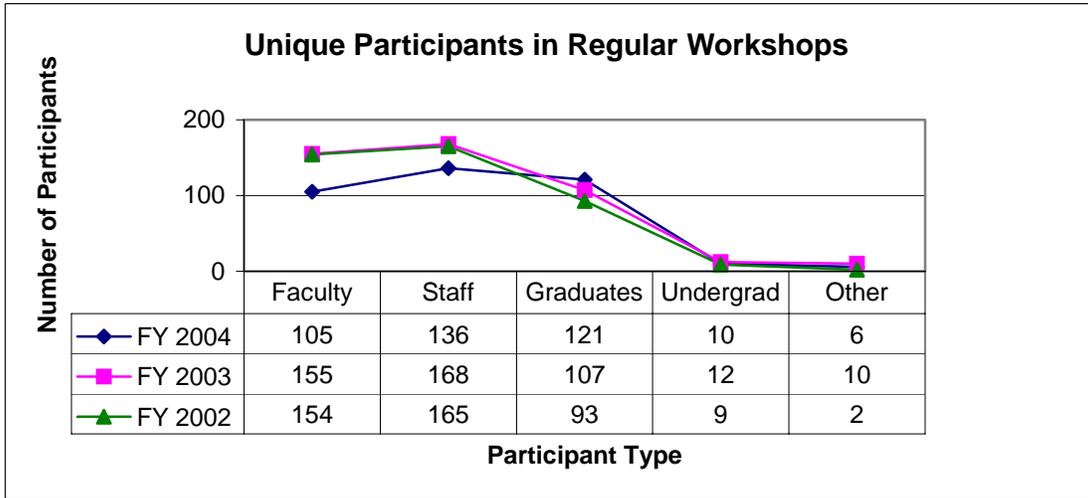
In FY2004 (which we count as June 1, 2003 – May 31, 2004, based on Summer 2003, Fall 2003, and Spring 2004 workshop schedule cycles), the LTS had 1538 enrollments in regularly scheduled shops. 378 unique faculty, students and staff engaged in instructional activities were supported in FY2004 via these workshops and seminars. Compared to FY2003, which had 452 unique trainees, this represents a decrease of approximately 16% unique trainees served via our regularly scheduled workshops. Overall enrollments were down 15.9% compared to FY2003, from 1829 in FY2003 to 1538 in FY2004. For regularly scheduled workshop participation there has been a trend of decreasing enrollments over the past 3 years. In conversations with similar units at other institutions over the past year, this is not unique to NC State. The difficulty of enticing faculty to attend regular scheduled workshops and events is also noted in relevant literature (Rebaza, 1998).



Of our unique workshop participants, 105 of these participants were instructional faculty, 136 were instructional support staff, and 121 were graduate students, representing a decrease in the number of faculty and staff trained, and a 13% increase in the number of graduate students in our regular workshops. This is a trend that was consistent with previous years' participants: while the number of

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graduate students attending regularly scheduled workshops is increasing, the number of faculty and staff attending is declining.



Overall Enrollments and Unique Participants

Semester Training Results		FY 2004	FY 2003	Change
Key Workshop Indicators				
	Total Number of Workshop Enrollments	1538	1829	-15.9%
	Total Number of Faculty Enrollments	300	500	-40.0%
	Total Number of Staff Member Enrollments	623	647	-3.7%
	Total Number of Graduate Student Enrollments	567	571	-0.7%
	Total Number of Undergraduate Enrollments	31	73	-57.5%
	Total Number of Other Enrollments	17	38	-55.3%
	Percentage of Enrollments: Faculty Members	19.5%	27.3%	-7.8%
	Percentage of Enrollments: Staff Members	40.5%	35.4%	5.1%
	Percentage of Enrollments: Graduate Students	36.9%	31.2%	5.6%
	Percentage of Enrollments: Undergraduates	2.0%	4.0%	-2.0%
	Percentage of Enrollments: Others	1.1%	2.1%	-1.0%
	Total Number of Unique Trainees	378	452	-16.4%
	Total Number of Faculty Members Trained	105	155	-32.3%
	Total Number of Staff Members Trained	136	168	-19.0%
	Total Number of Graduate Students Trained	121	107	13.1%
	Total Number of Undergraduate Students Trained	10	12	-16.7%
	Total Number of Others Trained	6	10	-40.0%
	Percentage of Unique Trainees: Faculty Members	27.8%	34.3%	-6.5%
	Percentage of Unique Trainees: Staff Members	36.0%	37.2%	-1.2%
	Percentage of Unique Trainees: Graduate Students	32.0%	23.7%	8.3%
	Percentage of Unique Trainees: Undergraduate	2.6%	2.7%	0.0%
	Percentage of Unique Trainees: Others	1.6%	2.2%	-0.6%

In FY2004, Faculty Development Services offered 204 scheduled workshops consisting of 55 unique offerings, including the introduction of 23 newly created workshops. New sessions offered included:

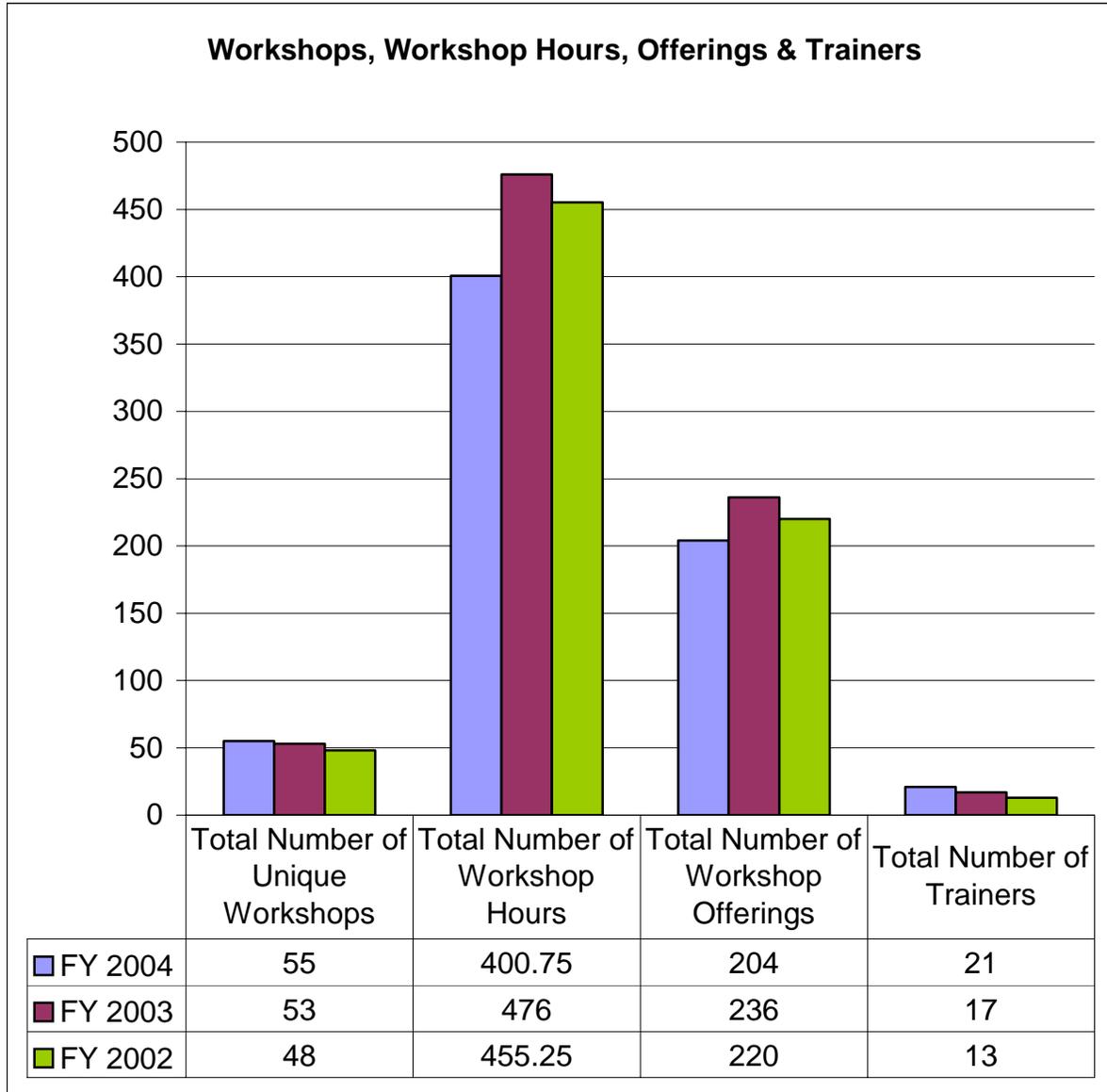
- WebCT: Communication Tools
- WebCT: Using ePacks
- WebCT Homework & Submission
- WebCT: Managing Content
- WebCT: Managing Grades
- WolfWare: Communication Tools
- WolfWare: Homework & Submission
- WolfWare: Managing Grades
- WolfWare: Publishing and Managing Files
- Publishing Multimedia to the Web
- Library Resources for Online Courses
- Captioning for Content Accessibility
- Matching Instructional Techniques to Supported Technology Tools
- Educational Uses of Internet Chat
- Scanning and Basic Photo Correction Technique
- Storyboarding 101: Design Online Instruction

Training topics in regularly scheduled workshops included:

- Design & Usability
- Web Content Creation
- Online Course Management
- Graphics & Multimedia
- Handheld Computing

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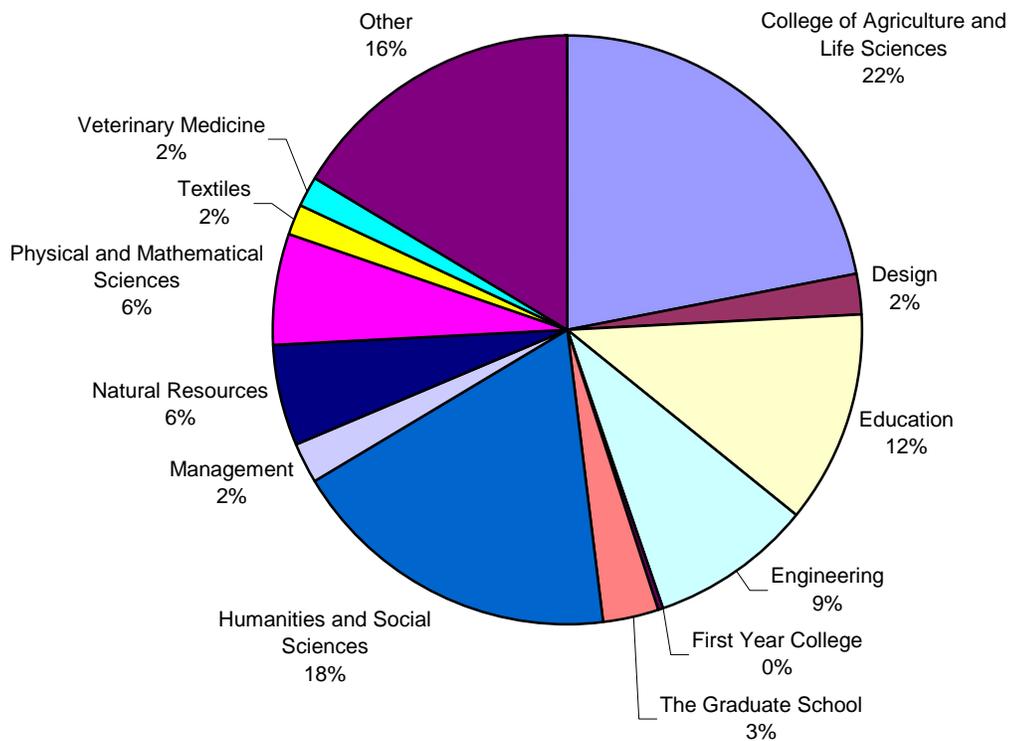
Effective Teaching Practices Meet Technology
 FacDev utilized 21 trainers during this time frame, and provided a total number of 400.75 workshop hours (15.8% fewer regularly scheduled workshop hours than FY 2003). We had a “No Show/Cancellation” rate of around 11% (a 38% decrease from FY 2003).



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College participation in our regularly scheduled workshops for FY2004 increased in CALS, CHASS, PAMS, and has decreased in the other colleges (Design, Education, Engineering, First Year College, The Graduate School, Management, Natural Resources, and Textiles). There was no change in the level of participation from Veterinary Medicine.

Spring 2004 Participant Demographics by College

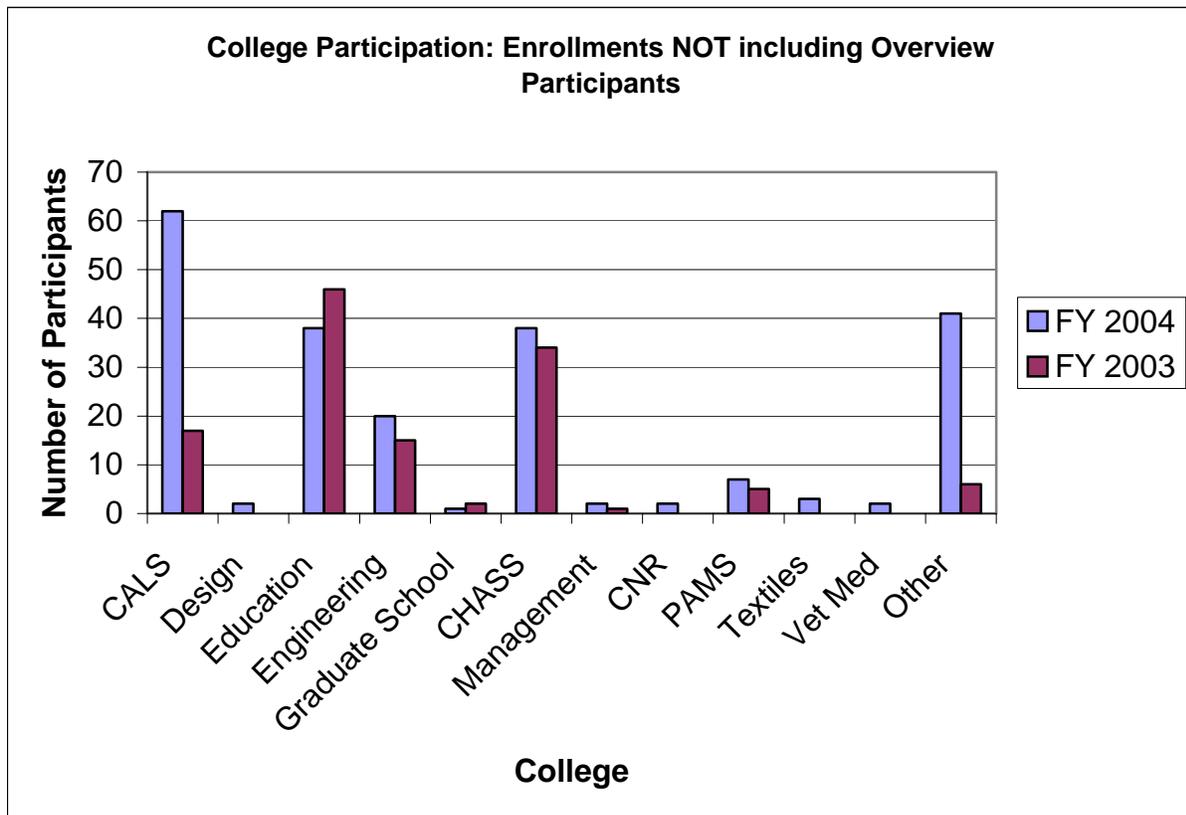


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Custom Training

Recognizing the demand for more custom training as opposed to regularly scheduled workshops, and noting trends in declining attendance for regularly scheduled workshops in FY2003, Faculty Development Services continued to offer custom training sessions to faculty, staff and graduate students engaged in online and enhanced technology instructional activities. During FY2004, FacDev recorded three types of custom training: Custom Workshops (defined as a hands on session requested by a department or group comprised mostly of faculty with some attendance by staff and graduate students), Custom Overviews (defined as Overview sessions on a topic of interest requested by faculty for their students to support teaching and learning in their classes), and Custom Seminars (defined as a departmental request for an overview about what Faculty Development Services can offer).

Approximately 194 unique participants were supported in our Custom Training Sessions (compared to 126 in FY 2003, a 54% increase). These 194 unique participants had 218 enrollments in our Custom Training Sessions. In addition, in our Overview sessions, we had 336 student enrollments and 6 faculty enrollments (compared to 69 in FY 2003, a 395% increase). Twenty (20) faculty, staff and students attended a Custom Seminars (no custom seminars were offered in FY2003). This constitutes an overall total of approximately 556 participants involved in custom training.



Custom training sessions (given between June 2003 and May 2004) included *Introduction to Web Tools* for members of the Sociology department; *Dreamweaver, technology standards, and WebCT* for the T&D Online Cohort during their on-campus Orientation; *Using Your PALM Handheld Computer* for the College of Agricultural and Life Sciences faculty and staff; *Dreamweaver 1: Creating a Basic Web Page* for several different classes, *Introduction to WolfWare* for the College of Engineering Forum and the Physical

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Education department, *Introduction to WolfWare* for the Physical Education department; *Introduction to WebCT* for the College of Engineering Forum and the Foreign Language Department; *Special Topics in WebCT* for the ITD Help Desk staff; *Special Topics in WolfWare* for the Physical Education department, *Improving Your Web Site Accessibility* for some ITAP participants, the Summer Institute Reunion, and a special, invitation only session of *What's Up: An Update on Learning Management Systems*.

Overview sessions were on *WebCT basics* or *Creating a Web Site* and were given to 14 different classes involving 6 different faculty members with 336 student participants between August 2003 and February 2004. One departmental seminar, *Supporting Learning in a Technology Rich Environment: DELTA Resources*, was presented to the Horticulture Science department in February 2004.

Faculty Development Outreach Initiative

This initiative consists of 12 different videotaped seminars:

- Considerations for Moving your Course to the Web for Beginners
- Matching Instructional Methods to Supported Tools
- How Technology Has Impacted my Teaching: Stories from the Field
- Designing Content for the Web
- Help's Available: Integral Resources
- Accessible, ADA Compliant Web Design
- Using Multimedia for Online Course Enhancement
- Evaluating Student Learning in an Online Course
- Engaging Students Online in an Online Course
- Small Group Exercises in an Online Course
- Managing Communications and More in an Online Course
- Teaching in the Distance Education Classroom

Courses are broadcast on the Cooperating Raleigh Colleges (CRC) Channel (Time Warner channel 18). While there is no way to tracking viewer participation in these workshops, anecdotal evidence that these seminars are being watched by a broad audience of people from the NC State community and beyond. During FY2004, these 12 seminars were broadcast 182 times on the CRC Channel.

Participant Reaction to Workshops

The LTS surveys all workshop participants using an online evaluation form after each workshop. The following summary data pertinent to participant reaction to our workshops is summarized from Summer 2003 – Spring 2004 workshops (76% response rate for workshop enrollments, n = 1034).

- 94.6% of all participants agreed or strongly agreed that the content covered in the workshop attended was appropriate and relevant to their needs.
- 96.7% of all participants agreed or strongly agreed that the content was according to what was advertised.
- 95% of all participants agreed or strongly agreed that the workshop they attended met their overall expectations.

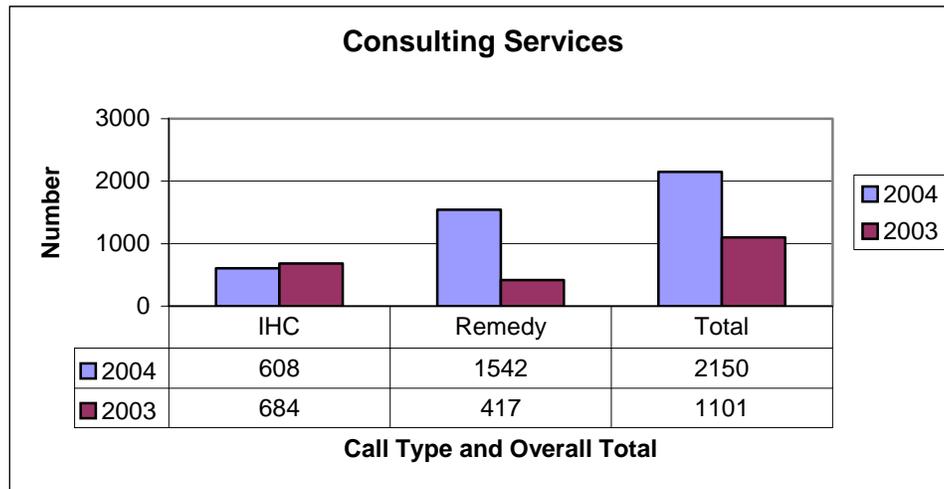
These numbers are consistent and not significantly different from responses over the past three years, indicating that the unit is successful in delivering high quality workshops and marketing them to an appropriate audience.

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Instructional House Calls & Help Desk Support

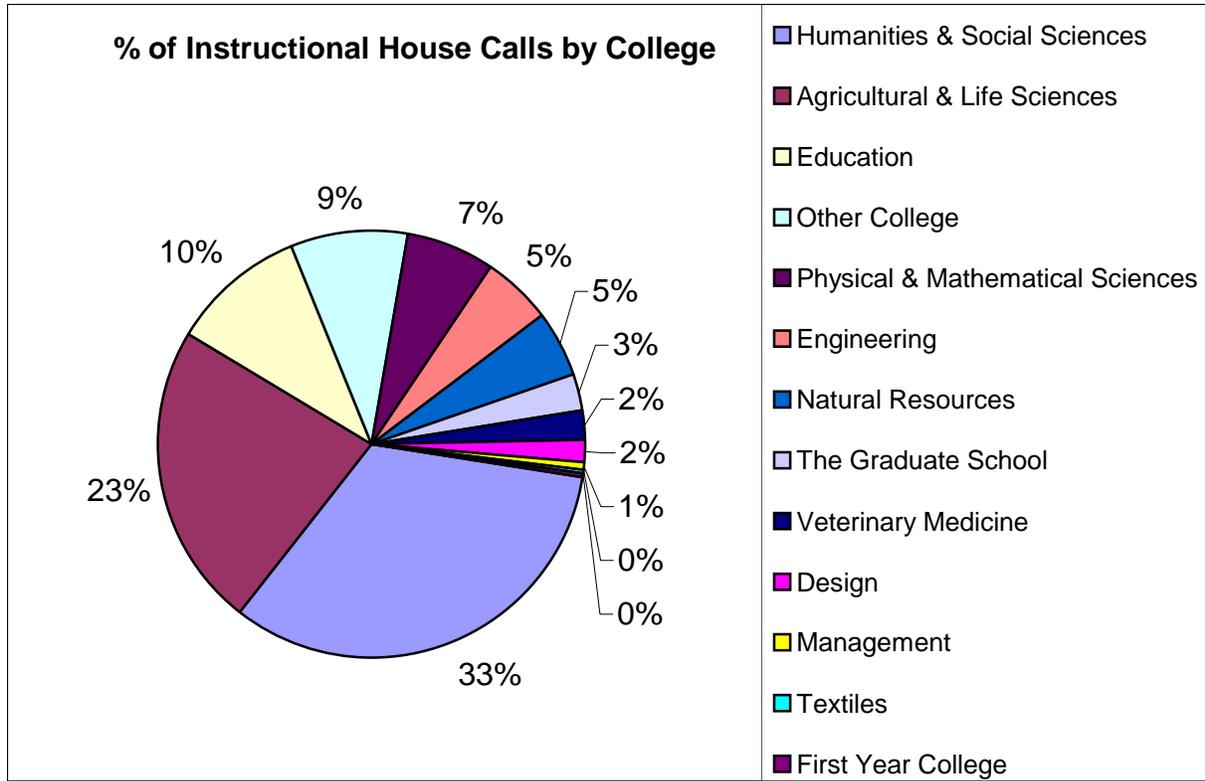
For consulting services, FY2004 count is based on data from July 1, 2003 – June 30, 2004. Consulting services include phone and e-mail support that consist of in-depth assistance to faculty members either in their office or ours.

As noted previously, while regularly scheduled workshop attendance is declining, both custom training and the demand for individual support and assistance are increasing. This increase is not surprising, as faculty’s desire for one-to-one or custom instruction and assistance is noted in relevant literature (Kaminski, 2000) and has been discussed among our colleagues in the UNC system at various meetings, such as the 2004 TRI-IT conference, that we’ve attended. In FY 2004, the Faculty Development Services group, including our part-time students, participated in **2150** documented e-mails, phone, and in-person help calls and consultations. This number was obtained from a review of calls in the Remedy queue, from entries in the Instructional House Call system, and from entries in the LTS reporting tool. A total of 1542 Remedy calls and 608 Instructional House Calls were reported in these systems during FY2004, **almost double the number of total consulting calls reported in FY2003** (1101 e-mails, phone, and in-person help calls and consultations of which 417 were Remedy calls and 684 were Instructional House calls). While the increase in providing support is substantive and there was an increased volume of clients, the increase is in part explained by better internal documentation and the development of an internal job aid to promote a better understanding of how to differentiate Instructional House Calls from Help Calls.

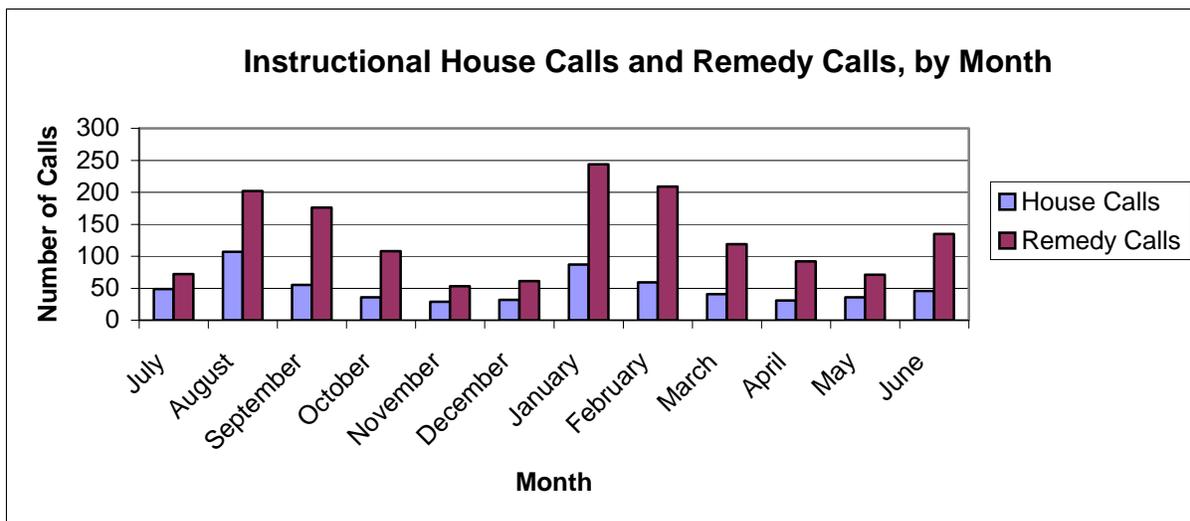


Better tracking mechanisms this year allowed us to obtain a clearer view of the Instructional House Calls recorded by college.

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This year, Faculty Development Services began tracking the number of Instructional House Calls and Remedy calls resolved each month to better understand peak times. By tracking volume, we can better prepare staffing levels and plan programs around times that are notably busy consulting times. As expected, the largest volume of calls occurred at the beginning of fall and spring semesters, notably in January and February, then again in August and September. We also experienced a rise in the number of calls in June, due to a combination of summer school classes and supporting Summer Institute participants.

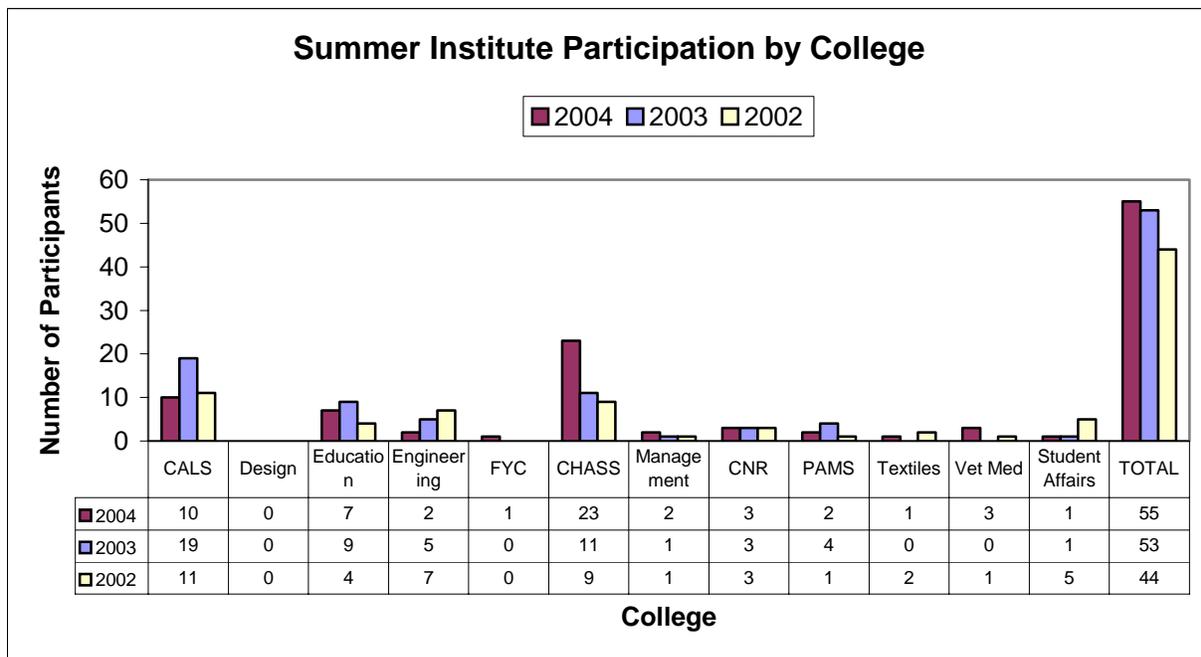


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The Summer Institute 2004

Based on final participation numbers, demand for the Summer Institute on Teaching and Learning with Technology remained consistent with program levels in 2003, once again having more registrations than number of seats available. 50 faculty members accepted invitations, along with 3 support staff and 4 faculty mentors involved with the Professional Writing Cohort, though actual total attendance was 55 participants (48 faculty, 3 support staff, 4 faculty mentors) due to two faculty participant drop-outs (both unexpected personal emergencies) on the first day of the institute. This is comparable to the 48 faculty and 5 support staff attendees from last year, and for the level of interest in this program to remain the same despite having no stipends for faculty this year speaks of this program's reputation. A detailed report based on this year's Summer Institute evaluations will be available Fall 2004.

The largest group participating in the Summer Institute this year was the Professional Writing Cohort from CHASS, consisting of 10 faculty members and 4 faculty mentors. This group formed its own mini-cohort and support structure within the Summer Institute, attending morning sessions together for training and Open Lab sessions together in the afternoon for focused group work. This cohort was encouraged to attend the Summer Institute as they were facing the need to offer their courses online by Fall 2004, and the Summer Institute was seen as a good way to immediately provide training and a positive support structure to get the group engaged in the process of transitioning their face-to-face courses online. This mini-cohort model within the Summer Institute was such a positive and motivating experience for this group of faculty that we would like to encourage other departments and programs to consider a mini-cohort within the Summer Institute as a way to positively kickoff their Distance Education efforts.

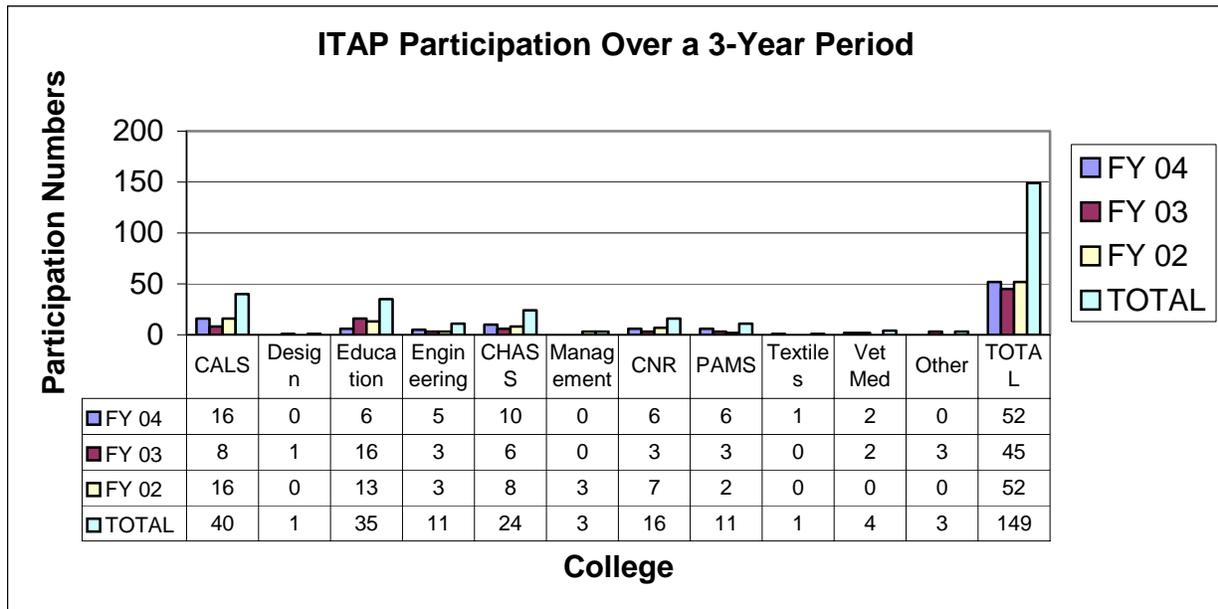


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The Instructional Technology Assistant Program (ITAP)

Faculty Development Services continued to implement the Instructional Technology Assistant Program (ITAP), with 52 staff and graduate students engaged in supporting faculty in instructional technology accepted into the program in FY 2004 out of 62 applications. The ITAP graduation rate increased by 15% (from 64% to 79%) during this same time period as a result of our ITAP coordinator and staff carefully considering applications and by providing more frequent one-to-one support. ITAP information, including a list of graduates and samples of their projects, can be found at: <http://lts.ncsu.edu/itap>. Overall, budgeting resources allow the LTS to provide this service to no more than 60 participants in a fiscal year. The program is marketed, but not aggressively. Feedback from both participants and faculty sponsors continues to clearly show that this program is making an impact in increasing instructional technology resources for various distributed education environments.

College	Accepted	Graduated	Graduation Rate
CALS	16	13	81%
Design	0	0	0%
Education	6	4	67%
Engineering	5	4	80%
CHASS	10	8	80%
Management	0	0	0%
CNR	6	6	100%
PAMS	6	4	67%
Textiles	1	1	100%
Vet Med	2	1	50%
TOTAL	52	41	79%



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MAJOR ACCOMPLISHMENTS

- Supported DELTA Compact Plan Initiatives including wireless computing, the Faculty Development Outreach Initiative, assessment, the LRCDA, the LTS Website Usability study and the workshop registration system.
- Provided a full complement of workshops, programs and services that are highly regarded by the NC State community, during a year of key staff turnover.
- Hosted a successful 6th Annual Teaching and Learning with Technology Summer Institute 2004 and the Summer Institute 2003 Reunion.
- Launched a mini-cohort group for 10 Professional Writing faculty and 4 mentors within the Summer Institute, including continued support for faculty who participated in that program
- Continued to expand online resources in the Faculty Development Services site, including ensuring that most workshops and seminars that we teach have supporting documentation online (see http://lts.ncsu.edu/resources/workshop_materials/index.cfm).
- Hired an Instructional Technologist

CHALLENGES

- Increasing faculty use of LTS services and programs, especially the use of WebCT VISTA
- Broaden the number of faculty who use LTS services and programs
- Integrate the workshop registration with our Instructional House Call system and our Workshop Evaluation system, to ensure that all systems accurately report data
- Continue to offer high quality, efficient service, under increasing demands for individualized help and attention from faculty.

MEDIA DISTRIBUTION SERVICES

In FY2004, oversight of Media Distribution Services (MDS) was transferred to the Learning Technology Service (LTS). In June of 2003, a Media Distribution Manager was hired, as part of that reorganization process. Media Distribution Services (MDS) provides media duplication and distribution support for NC State's distance education classes. The unit works closely with other LTS units, notably Video Communications Services (VCS) and Technology Development (TechDev).

FY2004 was one of positive change and growth Media Distribution Services (MDS). The MDS team worked together to craft solutions for areas of concern, making improvements to production and distribution systems. Students received materials in a timely and predictable manner, while production and shipping errors dropped significantly. Students were able to contact MDS directly with their inquiries and concerns, which were addressed promptly.

MISSION

Media Distribution Services manufactures and distributes digital and analog distance education media products for NC State University.

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SERVICES

Distribution via CD

Some of NC State's distance education courses, once produced, are encoded into Real Media files and uploaded to WolfWare (NC State's open source LMS), by Video Communication Services. Some students access course content by directly streaming or downloading these Real Media files to a home or office computer.

Students also have the ability to acquire a CD copy of the distance education course content. RM files are downloaded from Wolfware by MDS staff, copied on to CD's, and distributed to distance education students via United Parcel Service (UPS).

Focus on this service area was high this year, as there was dissatisfaction with services that had been provided in the previous year. Strategic decisions related to CD distribution have paid off in several ways. To address issues of quality control, consistency of service, cost and customer service, several steps were taken.

First and foremost, students received class materials in a predictable and timely manner. Second, course materials are created and delivered to students in a very cost effective manner. Rather than ship single classes on CD's several times a week, as was done in the previous year, MDS compiled a week of classes on each CD and shipped once a week, saving CD stock, packaging and shipping resources. The once weekly shipping also created a manageable workflow in MDS, allowing for greater attention to quality control, thereby reducing the number of errors in production and shipping.

Additional savings were realized by proactively using the most cost effective method of one-day delivery via UPS, for example, ground shipping to North Carolina, Virginia and South Carolina.

Scope of Services

A Scope of Services document was submitted to Engineering Online, the main CD client, in August. This document detailed the procedures and services provided to Engineering Online (EOL) by Media Distribution Services. Those services include:

- A simple, online method for students to elect to receive CD content
- A simple, online method for students to verify shipping addresses.
- A dynamic student database integrated with UPS Worldship
- A cost effective method of shipping CD's to students on a weekly basis
- An online student "Help Desk", using the Remedy system, to quickly respond to student questions and concerns

Engineering Online gives students a web address, where they indicate their desire to receive distance education course content via CD. This online "opt-in" process ensured that only students who actually wanted CDs received them. The previous year all students received CDs whether they wanted them or not. Approximately 40% of the EOL students opted for CD delivery, so the simple method of changing the default for CD shipment to "no", and requiring students to actively say "yes" resulted in a 60% savings of time, effort and cost this fiscal year.

Using the official University correspondence address and requiring students to verify the address as correct also eliminated a great deal of confusion.

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The Media Distribution System

LTS Technology Development created and managed the media distribution system, making improvements as needed. The database extracted information from Registration and Records, including student name, address and class information. That information was compared to the student opt -in list and shipping lists were created from the combined information. The system integrated seamlessly with the UPS Worldship software.

To address shipping concerns MDS selected a reputable shipping agent, already on state contract, that offered robust software integration and lower costs per parcel than previous years. MDS adjusted its production and shipping methods to match the schedule of the shipping agent. Integration with the UPS Worldship software was a key component of excellent service provision. The UPS Worldship provided MDS with comprehensive and searchable shipping records and parcel tracking capability. Distance education students automatically received a confirmation (via e-mail) containing the tracking number for the shipped CD.

Production Improvements

MDS streamlined the CD production process with a focus on increased efficiency and wise use of limited resources.

Production flow improvements were made by rearranging the Rimage CD duplicating towers, creating an ergonomically efficient work area, and networking the duplicators with an existing production computer, which increased hard drive storage capacity and enabled easy transfer of files.

Additional savings have been realized in this area by searching for competitive pricing of materials:

- Last year MDS spent .60 per blank CD. This year the same CDs were purchased for .27 each
- Last year MDS packaged CDs in cardboard sleeves for .20 each, this year we are using more durable plastic cases for the same cost.
- MDS ships ground parcels in "bubble" mailers, which cost .23 each. Now, a CD can be packaged and ready to ship for less than the cost of last year's CD.

Broadcast via the CRC Channel (Time Warner Channel 18)

Some of NC State's distance education courses, once produced, are broadcast via the Cooperating Raleigh Colleges (CRC) Channel. MDS provides tapes of DE classes for airing on the channel, which is received locally on Time Warner cable, channel 18. The CRC Channel is administered under the auspices of Dr. Rosalie Gates at Meredith College. Playback of tapes is performed by an antiquated system of tape decks housed at NC State Creative Services. The NC State program schedule for the CRC channel is created by MDS in collaboration with DELTA DE staff.

The Cooperating Raleigh Colleges cable channel 18 presented some unique challenges to Media Distribution Services this year. There were a variety of program glitches in the fall, most of which could be easily addressed by repeat broadcasts and notifying students via e-mail. Problems began in earnest in November when the station went off the air because an old computer monitor (connected to an old playback controller) failed, and a replacement could not be found because the monitor is no longer manufactured. Staff in Technology Development came to the rescue, finding three (3) CGA monitors in NCSU surplus, which were transferred to the CRC Channel.

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At the start of the spring semester in January the problems with the CRC Channel escalated, with many critical failures of the playback equipment, as well as signal problems and a few mistakes by playback operators. LTS personnel corrected the signal problems, but the other problems could not (and will not) be addressed without an alternate method of playing programs the channel.

The decision was made in February by DELTA to deliver spring cable TV classes via tape to distance education students. The broadcast schedule continued to maintain a presence on the channel (NC State using the greatest amount of the program day by far), but students received their course content via tape, creating an unanticipated project for MDS for the duration of the spring semester.

Videotape Distribution via the NCSU Bookstore

Some of NC State's distance education courses, once produced, are taped. Multiple copies are distributed to distance education students via the NCSU bookstore. MDS serves the largest number of students via videotape distribution through the NCSU Bookstore.

This year, the NCSU bookstore distributed a few outdated tape sets. Also, some tape sets were not delivered to the bookstore in a timely manner. This especially occurs with "quick turnaround" classes – those taped one semester and immediately offered on tape in the following semester.

The great challenge with videotape duplication is that must be done in real time. Also, the use of videotapes creates large volume of materials that have to be handled and transferred back and forth between the bookstore and offsite storage. To improve production output and deal with increased workload MDS added a 20-deck dub rack to the existing 75-deck system, bringing the total number of decks to 95.

Distribution Support

Help desk calls are tracked through the campus Remedy system. In assessing distribution support efforts, call volume was tracked. Most inquiries to the Remedy queue were answered within 24 hours. Remedy calls tend to peak at the beginning of the semester when students have a lot of questions, and then drop off as the semester progresses. Most Remedy calls are basic inquiries that do not reflect errors in the production process. Nevertheless, some calls can be directly attributed to errors by the team and inform potential needed changes to the production process. Professionalism and timeliness in which these are handled is reflected in performance reviews of staff members.

Help Desk Calls (Remedy)

	EOL	DE	Total	MDS Errors
August	21		21	0
September	15		15	5
October	8		8	2
November	3		3	1
December	11		11	0
January	17		17	1
February	8		8	2
March	4		4	1
April	1		1	1
May	5	8	13	0
June	1	3	4	0
Total	94	11	105	13

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MDS adopted Remedy to track customer service activities in fall 2003. As using Remedy was a new process for the MDS staff, some inquiries were not logged. Next year, the team will ensure appropriate and thorough use of the Remedy queues.

USAGE

Number of students served FY2004

	Fall	Spring	Summer	FY2004
CD	123	91	45	259
CRC Channel	76	100	0	176
Videotape	587	813	564	1964
Total	786	1004	609	2399

*No distribution via the CRC Channel, due to playback problems.

CD Distribution: Shipping Transactions and Costs

	FY2003	FY2004
Shipping transactions	14,355	2,914
Total shipping costs	\$141,148.54	\$17,867.40
Average cost per parcel	\$9.83	\$6.13

MAJOR ACCOMPLISHMENTS

- Significantly improved Media Distribution productivity and product quality by creating realistic production expectations and improving workflow
- Significantly improved MDS productivity and product quality by enhancing production equipment configurations, duplication capacity, and networking.
- Integrated MDS processes, in collaboration with LTS Technology Development, with UPS Worldship, allowing for thorough and responsive customer service.
- Kept the CRC Channel 18 on the air through several major technical failures.
- Created the Scope of Services document for Engineering Online (EOL).
- Began using Remedy to track Help Desk inquiries, allowing for improved customer service, tracking, process improvements and trend spotting
- Hired a Media Technician 1 and eliminated temporary positions.
- Coordinated selection of a viable alternative to a costly and little used ISDN connection.

CHALLENGES FOR NEXT YEAR

- Increasing communication with critical clients to ensure firm deadlines and proactive planning
- Finding and implementing short and long term solutions to address concerns with the current technical infrastructure of the CRC Channel.

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- Exploring solutions to manage videotape archives.

ONLINE INSTRUCTIONAL PROGRAMS

Online Instructional Programs (OIP) provides services in instructional design, development and production, project management and online course resources.

During FY2004, staff, across DELTA, provided services and support to faculty on 16 IDEA grants, representing 7 out of 10 of the academic colleges. The OIP staff managed the IDEA grants program throughout the year, including the online submission and review system, the processes and procedures associated with delivering grant-related services to faculty, workshops and consultations, and internal project management. In addition, OIP supported other DELTA projects and programs, institutional projects and programs, and individual faculty across the university.

MISSION

Online Instructional Programs envisions a university that uses innovative technologies to provide high quality instructional environments that are effective for teaching and learning. OIP collaborates with faculty and staff to design and develop effective technology-rich learning materials.

OBJECTIVES

- Develop, implement and maintain DELTA's IDEA grant selection, review and production process
- Support the design and development of technology-rich instructional materials
- Collaborate with NC State colleges to foster innovative instructional practices, empower faculty through DELTA services and communicate the need for new services
- Support the achievement of LTS and DELTA objectives and serve as consultants within the LTS and DELTA in OIP areas of expertise
- Streamline processes and document lessons learned in order to maintain efficient production of scalable, repeatable programs and services
- Develop and maintain staff expertise in multimedia, graphic design, web application development and instructional design.

IDEA GRANT PROJECTS

(16 total, representing 7 out of 10 academic colleges)

College of Agriculture and Life Sciences (CALs)

Project: Space Biology: Phase II: Development of a Distance Education Course (CALs)	
Faculty: Chris Brown	DELTA Lead: David Howard

The purpose of this project was to continue the development of a distance version of BO277: Space Biology by building a course around the synchronized video/Powerpoint lectures developed in the preceding grant. DELTA worked with Chris Brown to design a web site with information about the course a WebCT course for BO277 featuring quizzes and short essays, weekly schedules for lectures and readings and a group project.

Resources: 200 hours allocated

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Impact on DE: Impact on DE: Type II Undergraduate; Spring 2004 enrollments: 9 DE, 25 TRACS; Fall 2004 cap: 30 DE

Project: ENT 201: Insects and People, Development of a Distance Education Course (CALS)	
Faculty: Clyde Sorenson	DELTA Lead: Stacy Smith

The purpose of this project was to develop a web-based version of ENT 201, Insects and People. This high-enrollment GenEd course covers insect history, diversity, structure & function, and behavior. To help develop the course, DELTA provided a range of services to the project faculty - Dr. Clyde Sorenson and Dr. Ron Kuhr. To date, the course website has been designed along with a prototype for the 25 units of instruction. A WebCT quiz on "Buzzers, Biters and Stingers" was also developed. *In progress:* a series of demonstration videos of insect behaviors, a multimedia tutorial on "Insect Orders" and a course welcome video.

Resources: \$7,826.00 allocated, 120 hours allocated

Impact on DE: Type II Undergraduate

Project: ZO 155: Animal Diversity, New Course for Distance Education (CALS)	
Faculty: Betty Black	DELTA Lead: Lisa Fiedor

The purpose of this project was to develop a new Distance Education course in animal biology: ZO 155 Animal Diversity. The course consists of a web site with assignments, interactive exercises, Flash animations, videos, and quizzes in Web Assign. DELTA has assisted with designing the course website and creating templates, creating Flash animations, making video and audio files accessible, researching WebCT's CD tool, creating a survey form, and creating an introductory video. To date, the course site has been designed and templates created, Flash animations have been created, the WebCT CD tool has been researched, and Dr. Black is working on captioning the videos.

Resources: \$11,997.20 allocated, 150 hours allocated

Impact on DE: Type II Undergraduate

Project: ARE 306: Agricultural Law, Course Enhance Material Development (CALS)	
Faculty: Theodore Feitshans	DELTA Lead: Scott Cason

The purpose of this project was to discuss marketing options for this course. Ted Feitshans and Scott Cason met and Dr. Feitshans said his desire was to see marketing distributed through a partnership network of community colleges. He also said he was interested in working with peers to grow additional courses and develop a more comprehensive program.

Resources: \$11,046.60 allocated, 25 hours allocated

Impact on DE: Type III Undergraduate

College of Design

Project: GD 342: History of Graphic Design (Design)	
Faculty: Martha Scotford	DELTA Lead: Mike Cuales

The purpose of this project was to further enhance the features of the GD 342 course website for distance students. The enhancements include online testing, audio-enriched images, and video tours of selected books from Special Collections at DH Hill Library. DELTA worked with Dr. Scotford to design and publish an online version of GD342. DELTA also supported Dr. Scotford with the design, edits and publication of course content, quizzes, artwork, and created a videotape tour of the rare books collection

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in the library. DELTA conducted several instructional design and online teaching consultations with Dr. Scotford. The Special Collection video tours, produced by Video Communication Services, have been placed on the web and used by distance students. DELTA also provided marketing consultation and self-promotional materials for Dr. Scotford to publicize the course. DELTA designed a promotional package that targeted graphic arts and design school college advisors. These were mailed out to over 170 contacts at public and private institutions.

Resources: \$3,455.20 allocated, 20 hours allocated

Impact on DE: Type III Undergraduate

College of Education

Project: On-Line Master's Degree in Business and Marketing Education (Education)	
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Faculty: Terrance O'Brien	DELTA Lead: Connie Ingram
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The purpose of this program development grant was to help administrators and faculty in the Business and Marketing Education program to create a web presence that represents the program, enhances the existing online course materials for program courses, and facilitates development of future web materials for online courses. The following goals were identified in the first phase of the project: (1) complete the program website, (2) reduce the workload of program administrators, (3) update the course template, (4) convert four courses (ECI 560, 561, 562, and 657) to WebCT, (5) train faculty to use WebCT, and (6) introduce multimedia elements into program and courses. The program website became available on 4/7/2004, <http://BusinessMarketingEd.ncsu.edu>. A generic B&ME email address was created to reduce the workload of program administrators. Course templates and course conversion began in April and will continue through the summer. Faculty in the program attended the Summer Institute and other LTS workshops to learn about WebCT. A program welcome video was developed in April and May.

Resources: \$9,000.00 allocated, 400 hours allocated

Impact on DE: Type II Masters

Project: Assistive Technologies Applications Certificate Program (Education)	
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Faculty: Alan Foley	DELTA Lead: Rob Hambrick
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The purpose of this program-planning grant was to conduct a market feasibility study for establishing a distance education certificate program for Assistive Technology Applications. The focus of this effort was to fund personnel and operating expenses for market research, and DELTA employee staff time for consultation. Collaboration was created with the Center for Urban Affairs and Community Services (CUACS) to design and deliver a web-based survey to North Carolina Assistive Technology providers, practitioners, engineers, and educators. A market feasibility study was developed, funded and facilitated with the assistance of DELTA staff.

Resources: \$8,828.00 allocated, 40 hours allocated

Impact on DE: Type II Undergraduate

Project: ECI 515 Web Design for K12 – Distance Education Course Development (Education)	
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Faculty: Jane Steelman	DELTA Lead: Rob Hambrick
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The purpose of this course development project was to analyze the instructional methodologies and tools required to effectively present a course on Internet Applications and Web Design (ECI 518) for distributed delivery via the Web. In order to produce the course content, DELTA personnel attended ECI 515 class sessions; produced, edited, and captioned a course welcome video; prepared innovative

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a/synchronous presentations using RoboPresenter software; used accessibility validation and repair tools such as AccVerify and LIFT to ensure Section 508 compliance; and migrated course content from a resident delivery format to a computer-mediated environment. DELTA staff also researched and recommended strategies for synchronous delivery of course content using Centra Symposium.

Resources: \$7,200.00 allocated, 125 hours allocated

Impact on DE: Type II Masters

Project: Developing Interactive Online Simulations in Instructional Design (Education)	
Faculty: Diane Chapman	DELTA Lead: Mike Cuales

The purpose of this project was to continue enhancing the interactive case study produced for a previous IDEA Grant. Enhanced features include reusable and scalable content modules as well as additional audio, video and text based interactive content. DELTA staff members worked with Dr. Chapman to develop ideas for, storyboard and create an online interactive case study. The case study is presented as an immersive Flash-based activity that allows students to step through a narrative case study and learn information through self-paced and self-guided learning.

Resources: 60 hours allocated

Impact on DE: Type II Masters

College of Engineering

Project: Remote Observation and Control of Shake Table Experiment for DE (Engineering)	
Faculty: Abhinav Gupta	DELTA Lead: Darren Ley

The purpose of this resource development grant was to integrate a web-based remote-controlled experiment into the network so that it is accessible for distance education student research. The remote-controlled experiment was developed and used in a Civil Engineering course by local students during the Spring 2004 semester. The experiment involves remote observation of a civil engineering laboratory shake table used in conducting and testing design projects. DELTA staff provided consultations for making this experiment accessible to the distance education community.

Resources: \$9,900.00 allocated, 20 hours allocated

Impact on DE: Type IV Masters

College of Humanities and Social Sciences (CHASS)

Project: COM 431: Communication in Political Campaigns (CHASS)	
Faculty: Craig Smith	DELTA Lead: Stacy Smith

The purpose of this project was to develop a web-based version of COM 431, Communication in Political Campaigns. This course examines contemporary political campaigns as communication processes for political purposes. To help develop the course, DELTA provided a range of services to the project faculty –Craig Smith. To date, several instructional design consultations have been held, the course website has been designed and a course welcome video was produced.

Resources: \$4,500.00 allocated, 100 hours allocated

Impact on DE: Type II Undergraduate

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Project: COM 301: Presentational Communication – Phase II (CHASS)	
Faculty: Darrell Pond	DELTA Lead: Stacy Smith

The purpose of this project was to develop a web-based version of COM 301, Presentational Speaking. This course examines the design, organization and delivery of oral presentations for policy determination, policy implementation, and sales. To help develop the course, DELTA provided a range of services to the project faculty – Darrell Pond. To date, several instructional design consultations have been held, the course website has been designed and beta-tests of synchronous technologies have been conducted.

Resources: \$2,000.00 allocated, 80 hours allocated

Impact on DE: Type II Undergraduate

College of Natural Resources (CNR)

Project: Planning for an Online Graduate GIS Certificate (CNR)	
Faculty: Hugh Devine	DELTA Lead: Rebecca Swanson

The purpose of this program-planning project was to review existing courses in the GIS certificate program to determine the level of resources required to bring them to a robust learning experience in a distance format. The project also included development of a business plan to market the program and to guide assessment of learning outcomes. Due to the time constraints imposed by continuing involvement with LITRE and teaching DE courses, Hugh Devine was unable to make the progress he anticipated on the project objectives. He did meet with Scott Cason to discuss marketing strategies and with Rebecca Swanson to discuss future plans for the GIS program. Hugh hopes to devote time over the 2004 summer to achieve the goals of the IDEA grant.

Resources: \$7,000.00 allocated, 80 hours allocated

Impact on DE: Type III Graduate

FA 03 NR 531 – 21 SCHs M3 cell

SP 04 NR 531 – 27 SCHs M3 cell

SP 04 PRT 462 – 12 SCHs U3 cell

FA 03 PRT 462 – 3 SCHs U3 cell

SP 04 NR 535 – 12 SCHs M3 cell

College of Physical and Mathematical Sciences (PAMS)

Project: Engineering Calculus Series – Distance Education (PAMS)	
Faculty: John Franke	DELTA Lead: David Howard

The purpose of this program development project was to create a set of web materials to support the three-course sequence in Analytic Geometry and Calculus (MA 141, MA 241 and MA 242). DELTA has assisted with the design and develop of a website that will accommodate general information about the three courses, information about the individual sections of those courses and a student support section with helpful information for the students in all three courses. The student support site will facilitate communication from students to the most appropriate help providers, whether that is other students, TAs, faculty or staff. The support site will also include many materials that aid students in understanding difficult concepts. Those materials will include videos, worksheets and interactive animations. DELTA also developed several interactive animations to help populate the learning materials section of the support site.

Resources: \$36,000.00 allocated, 200 hours allocated

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Impact on DE: Type I Undergraduate

Project: Development of Web-based Tool for Students Organizing into Groups (PAMS)	
Faculty: Lavon Page	DELTA Lead: Thomas Wilson

The purpose of this resource development project was to develop a web based tool to allow students to organize themselves into groups. This tool will support activities such as scheduling testing facilities and assigning work to self selected groups of students. This application is the first Zope based development effort supported by an IDEA grant. Development of a prototype has begun; anticipated completion of the full application is summer 2004.

Resources: 80 hours allocated

Impact on DE: Type I Undergraduate

Project: Physics Course for In-Service to High School Teachers (PAMS)	
Faculty: Bruce Sherwood	DELTA Lead: Mike Cuales

The purpose of this course development project was to develop a distance learning version of the Matter & Interactions physics curriculum, aimed at in-service high school teachers of physics, to enhance their knowledge of contemporary physics, to provide models of new forms of instruction, and to introduce teachers to computational physics. Bruce Sherwood and Ruth Chabay, both in the Department of Physics, have been responsible for development and will oversee the actual running of the course, with the assistance of teaching assistants. DELTA has provided multiple consultations in video production and compression, web design and instructional development. DELTA researched many different solutions for the delivery of the video based instruction – via web and CD-ROM distribution. Guidance for equipment purchases and setup was provided, and a streamlined production process was implemented. Strategies for conducting group activities were also discussed. WebCT, Centra and other synchronous learning apps will be assessed.

Resources: 120 hours allocated

Impact on DE: Type III Undergraduate,

Note: Wrap up work was also completed on the following IDEA Grant projects from previous grant cycles: ELP 344: Support Lateral Entry Teachers Through Online Courses (Education), PHI 250: Practical Reasoning (CHASS), and FLN 101/102: A Door Into Hindi (CHASS)

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DE PROGRAM SUPPORT

Project: T&D Online	
Faculty: Diane Chapman, Tim Hatcher, Brad Mehlenbacher	DELTA Lead: Stacy Smith

The T&D Online program is a distance-delivered master's degree offered through the Department of Adult and Community College Education (<http://tdonline.ncsu.edu>). The purpose of this multi-year project is to develop web-based versions of the courses and to provide general program and faculty support. Throughout this academic year, DELTA provided course development and delivery support for the program courses, including: EAC 580, 581, 582, 583, 584, 585, 586, 759 and 795. DELTA helped the Coordinator of T&D Online to streamline processes & procedures, write various program reports/documents, and hire and supervise the T&D Online program assistants.

Impact on DE: Type II Masters

OTHER PROJECTS

IDEA Grants Online Management System	
Faculty: N/A	DELTA Lead: Thomas Wilson

OIP staff enhanced and updated, with the support of LTS Technology Development, the existing IDEA Grants system to include support for the functions of grant submission, grant review, workshop registration, evaluation, status reporting, and administration of events including email notifications. OIP staff also evaluated and began the process of migrating the IDEA Grants system to a Zope implementation. This system facilitates the administration of IDEA Grants throughout the entire IDEA Grant process.

Course Development Fileserver	
Faculty: N/A	DELTA Lead: Thomas Wilson

OIP staff installed and configured a file server to support course development. The server supports production activity on the video workstation and provides storage for files too large for AFS lockers.

Centra Implementation	
Faculty: N/A	DELTA Lead: Rob Hambrick

The purpose of the Centra Service Workgroup, within the Strategic LMS Implementation Committee (SLIC) is to design and develop an instructionally effective synchronous learning management service for NCSU stakeholders. The workgroup will collaboratively develop the various elements of the Centra pilot service: systems operations, training, pilot program, user interface, and applications development.

MAJOR ACCOMPLISHMENTS

- Worked with faculty to create online materials for six (6) new distance education courses
- Worked with faculty to create materials in support of seven (7) existing distance education courses
- Worked with faculty to develop materials in support of three (3) new distance education programs
- Set up a new fileserver for sharing project documents and deliverables

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- Developed new streamlined processes for the DELTA IDEA Grants program
- Hired and trained a new Web Content Developer, Accessibility Specialist

CHALLENGES

- Develop high-quality distance education courses and materials, while meeting deadlines and maintaining production efficiency.
- Address the ongoing professional development needs of the group
- Hire and train a Multimedia Specialist to address the job vacancy in the OIP group.
- Hire and train a permanent Program Assistant to meet the administrative needs of the group.

TECHNOLOGY DEVELOPMENT

This year, Technology Development, within the LTS, passed several milestones in the provision of distributed and distance learning services for the University. These milestones were collaboratively reached with faculty, staff and technology administrators across divisions of the institution.

MISSION

Technology Development manages commercial and in-house learning technologies, including WebCT and WolfWare, integrates those technologies with other campus systems, and develops new technologies where there is demonstrated need.

USAGE

DELTA provides the disk space for streaming media files used in on-line courses, as well as the licenses and support for NC State’s learning management systems: WolfWare and WebCT.

WolfWare and WebCT Statistics

	Fall 03			Spring 04			Summer 04		
	Total	WolfWare	WebCT	Total	WolfWare	WebCT	Total	WolfWare	WebCT
Students	31,724	23,126	15,442	30,107	21,847	10,462	29,394	3,539	3,063
Courses	3,274	938	311	3,301	993	341	200	174	117
Course Sections	6,464	2,067	403	6,204	1,928	462	569	266	134
DE Course Sections		137	32		213	46		11	19
Support Users		1,643	872		1,588	878		245	247

Servers

Use of servers by the academic community will increase, as colleges and departments use Internet-based and server-based systems to provide information to students, develop projects, and host applications, databases & other instructional systems. LTS Technology works in association with ITD and Resource Management and Information Systems (RMIS) to provide these services. All servers are located in the ITD Server Room, unless specified otherwise.

Name: uni01wct.unity.ncsu.edu (webct.ncsu.edu)
 Primary IP: 152.1.1.82
 Operating System: Solaris 2.8
 Hardware: Sun Enterprise 450, 2x80Gb HD, 2Gb RAM
Function: Primary WebCT 3.8 server

Name: uni02wct.unity.ncsu.edu
 Primary IP: 152.1.1.89
 Operating System: Solaris 2.8
 Hardware: Sun Enterprise 220R, 1x30Gb HD, 2Gb RAM
Function: WebCT Development server

Name: ww98ws.unity.ncsu.edu, ww99ws.unity.ncsu.edu
 Primary IP: 152.1.2.229, 152.1.4.99
 Operating System: Solaris 2.8
 Hardware: Sun Sparc Ultra
Function: WolfWare Development Server

Name: ww01ws, ww03ws, ww05ws.unity.ncsu.edu
 Primary IP: 152.1.2.15, 152.1.2.19, 152.1.2.30
 Operating System: Solaris 2.8
 Hardware: Sun Netra
Function: WolfWare Submit Server

Name: ww00ws, ww02ws, ww04ws, ww06ws.unity.ncsu.edu
 Primary IP: 152.1.2.14, 152.1.2.16, 152.1.2.20, 152.1.2.35
 Operating System: Solaris 2.8
 Hardware: Sun Netra
Function: WolfWare WebServer (courses.ncsu.edu)

Name: ww01g.unity.ncsu.edu
 Primary IP: 152.1.2.13
 Operating System: Solaris 2.8
 Hardware: Sun Netra
Function: WolfWare Cron/Mail server

Name: ww90ws.unity.ncsu.edu, ww91ws.unity.ncsu.edu
 Primary IP: 152.1.4.114, 152.1.4.116
 Operating System: Solaris 2.8
 Hardware: Sun Blade
Function: WolfWare II/Integration Layer Development

Name: delta-boot.delta.ncsu.edu, sunfire.delta.ncsu.edu
 Primary IP: 152.14.19.252, 152.14.19.243
 Location: Ven III wiring closet
 Operating System: Solaris 2.8
 Hardware: Sun Fire v100
Function: install server, redundant hardware

Name: ahoskie, asheville, clayton.delta.ncsu.edu
 Primary IP: 152.14.62.150, 152.14.62.151, 152.14.62.152
 Location: Ven III wiring closet
 Operating System: Debian Linux 3.0
 HW: Dell Poweredge 2650 2x2GHz Xeon, 32 Gb RAID
Function: Sope Application / Database servers

Name: winston.delta.ncsu.edu, salem.delta.ncsu.edu
 Primary IP: 152.14.62.153, 152.14.62.154
 Location: Ven III wiring closet
 Operating System: Debian Linux 3.0
 Hardware: Dell 1x 1.8GHz P3, 32 Gb, 512Mb RAM
Function: Load balancers

Name: portaldev.delta.ncsu.edu
 Primary IP: 152.1.45.25
 Location: CALS Server Room
 Operating System (as of last fiscal year): Win2k Adv
 Hardware: Dell Poweredge 2650 2x2GHz Xeon, 130 Gb RAID, 2Gb RAM
Function (as of last fiscal year): MS SQL

Name: delta08.cals.ncsu.edu
 Primary IP: 152.1.45.36
 Location: CALS Server Room
 Operating System: Win 2000 Adv. Server
 Hardware: Dell 4x 733 MHz Xeon, 100 Gb RAID, 2Gb RAM
Function: Backup MS SQL server

Name: uni00wp, uni01wp, uni02wp.unity.ncsu.edu
 Primary IP: 152.1.2.152, 152.1.2.153, 152.1.2.155
 Operating System: Solaris 2.6
 Hardware: Sun Netra
Function: CF App Server

Name: dlt##df.unity.ncsu.edu (## goes from 00-07)
 Primary IP: 152.1.1.189-196
 Operating System: Solaris 2.8
 Hardware: Sun Blade w/ RAID units
Function: Streaming Media AFS server

Name: kubrick.delta.ncsu.edu
 Primary IP: 152.14.62.160
 Location: Ven III wiring closet
 Operating System: RH Linux 8.0
 Hardware: Penguin Relion 230
Function: OIP File Server

Name: dlt##wj.unity.ncsu.edu (## goes from 10-13)
 Primary IP: 152.1.2.214-217
 Operating System: Solaris 2.8
 Hardware: Sun Fire 280R
Function: WebCT Vista Application Server

Name: dlt10wa.unity.ncsu.edu
 Primary IP: 152.1.2.218
 Operating System: Solaris 2.8
 Hardware: Sun Blade 150
Function: WebCT Vista Application Admin Server

Name: dlt10rdb.unity.ncsu.edu
 Primary IP: 152.1.2.219
 Operating System: Solaris 2.8
 Hardware: Sun Fire V880 w/ attached Storage 3510
Function: WebCT Vista Database Server

RealMedia Statistics

With the development of the Indite tool, the LTS can accurately log usage of the RealMedia files stored in AFS and used by distance education students and faculty. While last year, the ratio of streaming use versus download was almost equivalent, this year, 60% of logged activity is downloads. Students may be willing to wait for a downloaded copy to ensure better viewing quality.

Real Media Usage: Streams and Downloads, FY 2004

	Course s	RM Files	Streams		Downloads	
Fall 2003	23	323	14,127	40%	20,842	60%
Spring 2004	43	1185	15,194	40%	22,777	60%
Summer 2004	2	43	667	40%	1004	60%

MAJOR ACCOMPLISHMENTS

- Reorganized LTS Technology Development in August of 2003
- Worked in collaboration with Media Distribution Services (MDS) and UPS to implement and install the UPS WorldShip software
- Worked with LTS Online Instructional Programs to support the development of the DELTA IDEA Grants Online Management System
- Launched the NC State Physics LabWrite tool in Zope
- Led negotiations for the creation of SLAs for Microsoft SQL services with ACS
- Continued development and training of LTS staff in Zope and Plone.
- Installed new hardware on WebCT CE (Campus Edition) server to extend life and add disk space.
- Developed a temporary solution for semester rollover of WolfWare courses.
- Modified the WolfWare gradebook to accommodate the new campus ID transition.
- Developed a more automated WebCT (CE) course creation system.
- Developed DELTA marketing tools.
- Created new websites for DELTA, LTS, LITRE, and SLIC

CHALLENGES

- Maintaining sufficient staffing for required levels of support and development.
- Staff turnover, combined with the difficulty finding qualified applicants
- Limited hosting options for critical servers

VIDEO COMMUNICATION SERVICES

MISSION

Video Communications Services (VCS) is dedicated to providing a video production and broadcast infrastructure, application development and technical support for the university. The goal of VCS is to maintain a high quality media environment, improve and assist in technology developments that relate

to the production, delivery, and transmission our distance education courses, provide and support interactive video conferencing over high-speed Internet connections, from the desktop, in our conference rooms, or in our specialized, distance education classrooms.

SERVICES

This year, Video Communications Services supported the EOL (Engineering Online) program through the production of 2,820 tapings lasting 2,845 hours. Fourteen (14) lectures (207 hours) were transmitted via H.323 for the Engineering 2+2 and Bachelor of Science in Engineering (BSE) programs. Support of the DELTA's Flexible Access Program consisted of 660 tapings lasting 856 hours. Sixteen (16) interactive courses were broadcast via the NC-REN network, including Chemical Engineering, Adult and Community College Education, and Foreign Languages. Regular seminar series were also produced for Computer Science TCSDLS and NSF. Other conferences were facilitated for the Chancellor's office, E-Commerce, and UNC Finance.

Video Communications Services provided video production support to the NCSU-based Center for Transportation and the Environment for the broadcast of two, three-hour satellite conferences from NC State to over 250 nationwide sites (2,500+ people each broadcast) this past year. The APDLN (Air Pollution Distance Learning Network) was utilized as well as other Ku and C-Band satellites.

The College of Engineering expanded its distance learning activities last year by adding an additional 2+2 interactive program site at UNC-W. The existing 2+2 facilities at UNC-Asheville and Lenoir Community College were enhanced to better support distance education offerings. Distance education graduate programs are tentatively planned that will utilize the H.323 technology as well as the production services and facilities managed by Video Communications Services. Field production services including Producer/Director services were also provided to support the Permaculture and HI207 courses.

Distance Learning Productions

Distance education classes can be videotaped or broadcast via NC-REN, H.323 or webcast. NC State's distance education classrooms allow for presenting media including slides, overheads, computer generated graphics, and videotapes. Two-way interaction with other sites via the NC-REN network provides "live" participation with other universities across the state. Experienced full-time personnel direct all productions to assure quality. The distance education classrooms can also be used to receive satellite programs.

Videoconferencing

Videoconferencing is two-way video interaction with participants at remote sites. Participants can interact with other participants at off-campus sites. Overheads, computer graphics, slides, and video can be incorporated into the two-way communication. Videoconferencing is used for research collaborations, office hours, tutorials, help sessions and courses. VCS can connect to all UNC campuses via NC-REN or H.323, as well as any community college or state agency that is connected to the North Carolina Information Highway (NCIH). Videoconferencing with companies and universities, worldwide, is facilitated via our connection with NC-REN or DELTA's H.323 MCU (Multipoint Conference Unit).

Field Shooting & Production

Field shooting allows for video capture in remote locations. Utilizing DVCPRO, Betacam SP or mini DV recording formats, video can be shot in various locations and then edited into a finished program. Special

equipment is available for shooting computer screens with no "flicker". Scan converters are used to record computer outputs. All necessary lighting and audio equipment is available to shoot high quality productions. A teleprompter is available. VCS staff can shoot in compact situations or handle multi camera productions. Clients use VCS production services to develop educational programs, proposal supplements, research report enhancements and public information initiatives.

Editing

Editing provides a way to connect various video elements into a finished program or program segment. The editing process can include most digital effects, graphic inserts and multiple channel audio mixing. The flexibility of on-line quality, non-linear editing allows changes to be made quickly and without the need to re-edit the other program elements before or after the change.

Producer/Director Planning Services

Experienced Television Producer/Directors assist and plan video productions, including scriptwriting, instructional design, graphic design, and all other elements of television production. VCS specializes in "turn-key" production. Staff members have extensive broadcast experience in complex live productions as well as the direction of talent in scripted productions. VCS utilizes project management, budgeting and scheduling techniques to provide efficiency and fiscal accountability.

Satellite Uplinking and Downlinking

Satellite uplinking (transmitting) services for KU-Band and C-Band are available through an arrangement with Microspace Satellite via microwave link. Using the NCSU campus fiber network, signals from different facilities on campus as well as NC-REN can be networked to the satellite facility. We also have satellite downlinking (receiving) capability for a wide variety of KU & C Band analog and digital programming.

Video Streaming Services

Video Communications Services can broadcast, live, via NC State's Real Server from Real Networks. In addition, VCS also can capture video programs, archive it, and place it in your AFS server space on campus or provide a CD or DVD master.

Distance Education Facilities

VCS outfits, supports and manages the NC State's distance education classroom (111) facilities and video infrastructure. NC State maintains twelve teleclassrooms and videoconference rooms on the NC State campus that are connected to the North Carolina Research and Education Network ([NC-REN](#)) and other NC State video facilities via the university campus fiber-optic network. A media production facility provides master-tape inventory control, quality control, and duplication services for distance education course materials. Additional teleclassrooms will be built to defined distance education technology classroom standards in response to increasing distance education enrollments in video-based courses.

This year, upgrades were made to the Video Communications facilities including:

- Design, management and installation of the Mann Hall 406 project, brought on line in September, 2003 as a new distance learning classroom.
- Lighting upgrades were made and a new lectern was added to one the Park Shops 1 classroom.
- Inscriber Character Generators were installed in distance education facilities, located in Poe, Winston, and Withers.
- Redundant Real Media encoders were added to the all distance learning classrooms ensuring zero losses of digitized course material.
- Park Shops classroom interiors were upgraded.

- An inventory of critical spares was created to ensure zero down time of mission critical equipment.
- DVD recorders were added to the Park Shops 1, 2, and EGRC control rooms
- An Anystream MDS 1000 Digital encoding system was added to the Park Shops facility.

The Learning Technology Service also focused on developing Service Level Agreements (SLA) to clearly define VCS and college responsibilities surrounding use and management of distance education classrooms. To date, a draft SLA has been developed for each 111 classroom at NC State. DELTA and the colleges are in various stages of negotiation to finalize and sign these SLAs.

In addition to developing distance education classroom SLAs, the LTS performed a needs assessment to outline DE facilities needs for DE enrollment growth. With double-digit growth in distance education enrollments and bond buildout buildings off-line for renovation, investment in new distance education classrooms is critical--just to maintain enrollments. DELTA, in association with Registration and Records, the Office of the University Architect, and the College of Engineering have identified two additional classrooms for DE conversion: Daniels 327 and a 66-seat classroom in COE II.

This fiscal year, DELTA will prepare for DE classroom renovations in Withers, Daniels 327, Daniels 331, COE II and Park Shops. Renovation, design and planning of all these facilities will span four years.

USAGE

In FY2003, Video Communication Services completed 63 production projects and facilitated 101 video conferences.

Distance Learning Productions

	Courses	On-Campus Students	Programs					Transmission Method		
			EOL	Flexible Access	CED	COE	Other	LMS*	H.323	NCRE N
Fall 2003	50	1031	35	10	1	2	2	35	5	5
Spring 2004	41	904	30	6	1	4	0	31	10	2
FY2004	91	1935	65	16	2	6	2	66	25	7

*via WolfWare or WebCT

Courses and Transmissions: Fall 2003

		Programs				Transmissions		
EOL		Flexible Access	CED	COE	Other	LMS	H.323	NCREN
CE574	CSC/ECE579	PEC478	EAC779	CHE810	BME100	All EOL	MAE310	FLN 101
IE544	MAE206	FLG390A		ECE492E	MA573	Courses	ECE206	MA573
IE514	MAE310	BUS330					MAE206	EAC779
CHE543J	ECE206	HI208					ECE302	FLG390A
IE716	ECE591Z	HS495V					MAE301	CHE 810
CE702	CSC557	MA241						
CSC510	CSC517	ANT252						
CE594A	CSC/ECE576	PS201						
MAE301	CSC/ECE570	PA508						
CE522	ECE302	FLN101						
CE561	CSC/ECE775							
MAE518	CHE597C							
OR501	CSC114							
CHE 596	MAE524							
CE 576	MAE560							
CE 588	IE723							
MAE 742	MAE504							
	ECE 549							

Courses and Transmissions: Spring 2004

		Programs				Transmissions		
EOL		Flexible Access	CED	COE	Other	LMS	H.323	NCREN
MSE706	MAE589Q	HI207	EAC779	BME 790		All EOL +	MAE314	FLN102
MAE561	CE571	BUS305		CHE597B		ECE 492E	MAE208	EAC707
CHE551	CE722	PS498D		ECE492E			ECE220	
IE748	CHE598K	ENG209		CHE 810			ECE211	
MAE/ECE535	CE524	FLN102					ECE406	
MAE314		FL425					ECE455	
MAE208							MAE316	
CE509							MAE314	
CHE716							MAE208	
ECE220							MAE435	
ECE406								
ECE211								
MAE435								
ECE455								
MAE316								
CSC513								
CSC791J								
CSC316								
ECE/CSC573								
CSC505								
ECE/CSC579								
CSC316								
CHE575								
CE596D								
MAE543								

MAJOR ACCOMPLISHMENTS

- Hired three fulltime Production Assistants.
- Reduced temporary work staff from five full-time temporaries to two part-time employees, working less then 15 hours per week.
- Mann Hall 406 was brought on line in September as a new distance learning classroom.
- Complete refurbish of the Park Shops 1 and 2 distance learning classroom interiors.
- Inventory of critical spares established to provide zero down time of mission critical equipment.

LTS STAFF

During this year, employees totaled 40 full-time staff, 5 part-time & temporary staff, and 14 students.

Full-Time Staff

Jim Blair
 James Bossert
 Paul Brinich
 Ray Brown
 David Chapman
 Mike Cuales
 Larry Evans
 Lisa Fiedor
 Elliott Fisher
 Joe Gray
 Cheryl Harman
 Lou Harrison
 Rob Hambrick
 Hillisha Haygood
 Bill Hicks
 Leigh Jay Hicks
 Timothy Hinds
 Robert Holloman
 David Howard
 Connie Ingram
 Bob Klein
 Quentin Jones
 Darren Ley
 Sheila Martin
 Jenny McCall
 Tricia McKellar
 Calvin Nelson
 Tony Pearson
 Bob Pence
 Donna Petherbridge
 Sharon Pitt
 Theresa-Marie Rhyne

Jeff Robinson
 Stacy Smith
 Eric Stopka
 Christopher Thurston
 Scott Watkins
 Peter Watson
 Michael Whitman
 Thomas Wilson

Part-time and Temporary Staff

Lee Ann Gillen
 Miriam Guthrie
 Nancy Margolis
 Ann Shahan
 Sharon Smith

Graduate Students

Dede Nelson

Student Associates

Nicholas Baker
 David Barker
 Christa Bockweg
 Timothy Clark
 Bridgette Holley
 April Kemp
 Vishaal Khandoobhai
 Eric McEachern
 Anand Paleja
 Shilpi Suneja
 Douglas Steigerwald
 Daniel Underwood
 Brian Webb

UNIVERSITY, STATEWIDE, REGIONAL AND NATIONAL AFFILIATIONS

The Learning Technology Service is actively involved in NC State's Teaching, Learning Technology Roundtable (<http://www.ncsu.edu/tltr/>). This year the LTS coordinated and supported the Spring 2004 Teaching and Learning with Technology Roundtable (TLTR) Sessions while the TLTR Chair was on sabbatical.

The Learning Technology hosts and supports NC State's Multimedia User's Group (<http://delta.ncsu.edu/lts/resources/programs/mmug.cfm/>) or MMUG. This year's sessions featured presentations from NC State's faculty and external vendors.

NC State participates in the Triangle/Triad Instructional Technology group or Tri-IT. This group is comprised of college and university staff in the triangle region who support instructional technology at the university level share a lot of common interests and responsibilities, such as courseware, faculty support, training, and review of emerging technologies. This year, NC State hosted a meeting of the Tri-IT group (<http://delta.ncsu.edu/tri-it/index.html/>).

NC State established an award program to honor the creative pedagogy of NC State's faculty and their work in integrating new technologies into teaching. Sponsored by the Teaching, Learning, and Technology Roundtable (TLTR), the Faculty Center for Teaching and Learning (FCTL), and the Learning Technology Service, the Gertrude Cox Award (<http://zope.delta.ncsu.edu/gertrudecox/>) honors the creative pedagogy of NC State's faculty and their work in integrating new technologies into effective teaching strategies. H. Larry Brown, the 2004 recipient, was recognized for using technology to facilitate skill acquisition and provide individual feedback in physical education courses.

North Carolina State University is a member of the Teaching Learning Technology Collaborative (TLTC), a statewide cooperative of higher education institutions in the UNC System, addressing teaching and learning with technology issues. NC State, through the LTS and DELTA, has been an active member of this organization, discussing and documenting critical TLT issues such in assessment of students, the transformational nature of distance learning, and intellectual property concerns and copyright issues associated with distributed learning, learning management systems, e-learning pedagogy, e-learning support, IT professional development, and web accessibility.

NC State, represented through DELTA and the LTS, is a member of NLII, the National Learning Infrastructure Initiative. The NLII mission is to create new collegiate learning environments that harness the power of information technology to improve the quality of teaching and learning, contain or reduce rising costs, and provide greater access to higher education.²

PRESENTATIONS

RAY BROWN. *Overview of Learning Technology Services* at Ural State University, Yekaterinburg, Russia, Fall 2003.

LISA FIEDOR and Jason Morningstar lead the Web Accessibility Interest Group meeting at the UNC TLT Conference, March 2004, Charlotte, NC.

² <http://www.educause.edu/nlii/>

ROB HAMBRICK, STACY SMITH and David Whisler. "Synchronous Learning with Centra Symposium: Implementation Stories and Strategies," UNC TLT Conference, March 2004, Charlotte, NC.

DAVID HOWARD, JAMES BOSSERT, ELLIOTT FISHER, and SHARON P. PITT. "Transitioning to enterprise LMS at NC State," UNC TLT Conference, March 2004, Charlotte, NC.

CONNIE INGRAM, Jane Harris, John Antoine Labadie, Patricia LeClair, Robert Muffoletto, Todd Nicolet and Beverly Vagnerini. "Getting from the same old stuff to true innovation," UNC TLT Conference, March 2004, Charlotte, NC.

CONNIE INGRAM and DAVID HOWARD. "From IDEA to Innovation: Building a Grant Program to Support Technology-rich Instruction," UNC TLT Conference, March 2004, Charlotte, NC.

CONNIE INGRAM lead the E-Learning Support Interest Group meeting at the UNC TLT Conference, March 2004, Charlotte, NC.

DONNA PETHERBRIDGE, SCOTT WATKINS, LISA FIEDOR, ELLIOTT FISHER and DEDE NELSON. "Supporting Faculty, Staff and Students Engaged in Instructional Technology Activities," presentation at TRLN meeting, October 2003, Raleigh, NC.

Kasworm, Carol and DONNA PETHERBRIDGE. "Creating a Supportive System with Departmental Computing-Related Standards: 4 Years Later," EdTech Expo, September 2003, Raleigh, NC.

DONNA PETHERBRIDGE and Betty Black. "Teaching with Technology: Overview and Application," Preparing the Professoriate, December 2003.

Osborne, Dennis, Doug Sanders, DONNA PETHERBRIDGE, and LEIGH HAY HICKS. "Using Dreamweaver and WebCT to Support an Online Horticulture Course," poster session for the American Society for Horticulture Science, Annual Conference, July 2004.

SHARON P. PITT, "A plan for learning in a technology-rich environment." UNC TLT Conference, March 2004, Charlotte, NC.

SHARON P. PITT, "A quality-enhancement plan for learning in a technology-rich environment," presented at the NLII Annual Meeting, January 2004 in San Diego, CA.

SHARON P. PITT, Karen Helm, and Hugh Devine, "Learning in a Technology-Rich Environment: A Quality Enhancement Plan for a Research University," SACS Annual Meeting, December 2003 in Nashville, TN.

C. S. Brown, C.H. Thorton, E.D. Knight, K.H. Ellzey, T.C. Lanning and THERESA-MARIE RHYNE, Space Biology Educational Outreach at the Undergraduate and Elementary Levels, a poster displayed at the annual meeting of the American Society of Gravitational and Space Biology, November 2003 in Huntsville, Alabama.

THERESA-MARIE RHYNE, "Learning from Computer Games: Engaging and Interactive Ways to Enhance GeoVisualizations," presented at the EuroConference on Methods to Support Interaction in GeoVisualization Environments, March 2004 in Kolymbari, Crete, Greece.

THERESA-MARIE RHYNE, Melanie Tory, Tamara Munzner, Matt Ward, Chris Johnson, and David Laidlaw, "Information and Scientific Visualization: Separate but Equal or Happy Together at Last", presented at the IEEE Visualization Conference, October 2003 in Seattle, Washington.

THERESA-MARIE RHYNE, "Just off the Grid: A Perspective from the IEEE CG&A's Visualization Viewpoints Editor," IEEE Computer Graphics & Applications panel presentation at the IEEE CG&A Magazine Editorial Board Meeting, February 2004 in Vancouver, Canada.

THERESA-MARIE RHYNE, "Digital Progressions: Creating 2D & 3D on the Macintosh," delivered September 2003, in Durham, North Carolina, at the Apple Computer Store Southpoint.

PUBLICATIONS

SHARON P. PITT, Christina B. Updike, and Miriam Guthrie, "Integrating Digital Images into the Art and Art History Curriculum," *Journal of Library Administration*, Volume 39, Numbers 2/3, 2003. (reprint).

THERESA-MARIE RHYNE, Overview of Integrating Geospatial Data with Visualization Methods, in SIGGRAPH 2004 Course #30 (Visualizing Geospatial Data) Notes, in press, to be distributed at the ACM SIGGRAPH 2004 Conference (August 8 - 12, 2004), Los Angeles, California, (in press).

THERESA-MARIE RHYNE, ACM SIGGRAPH Carto BOF Session at SIGGRAPH 2003, Computer Graphics, Vol. 37, No. 4, November 2003 (a publication of ACM's Special Interest Group on Graphics (SIGGRAPH)), Association for Computing Machinery, New York, New York, page 12.

THERESA-MARIE RHYNE, Melanie Tory, Tamara Munzner, Matt Ward, Chris Johnson, and David Laidlaw, Information and Scientific Visualization: Separate but Equal or Happy Together at Last, proceedings of the IEEE Visualization 2003 Conference, October 19 - 24, 2003, Seattle, Washington, IEEE Computer Society Press, Los Alamitos, California, 2003, pp. 611 - 614. (panel presentation).

PROFESSIONAL REPRESENTATIONS

LOU HARRISON, Academic Exhibits Chair for SIGGRAPH 2003 in San Diego

ELLIOT FISHER and DAVID HOWARD, Chairs, 2004 TRI-IT Meeting, April 2004

SHARON P. PITT, NC State's Classroom Environment Committee, a university standing committee

SHARON P. PITT, NC State's 2004 Reaffirmation of Accreditation, Co-Chair of NC State's Quality Enhancement Plan, Learning in a Technology-Rich Environment

SHARON P. PITT, E-Learn Executive Board, 2004

SHARON P. PITT, NC State's representative to NLII (National Learning Infrastructure Initiative)

SHARON P. PITT, Teaching Learning Technology Collaborative, Chair and NC State Representative

SHARON P. PITT, LITRE Advisory Board, 2004

SHARON P. PITT, NC State's Faculty Center for Teaching and Learning (FCTL) Advisory Board, a university standing committee

PAUL BRINICH and THOMAS WILSON, Coordinators, Triangle Area ZOPE/Python Users Group

THERESA-MARIE RHYNE, NC State's Copyright Committee, a university standing committee.

THERESA-MARIE RHYNE, IEEE Computer Graphics & Applications Magazine Editorial Board, Visualization Viewpoints Department Editor

THERESA-MARIE RHYNE, Online Planning Journal Editorial Board

THERESA-MARIE RHYNE, Journal of Game Development Editorial Board

THERESA-MARIE RHYNE, IEEE Visualization Conference 2003 & 2004 Birds-of-a-Feather Co-Chair

THERESA-MARIE RHYNE, ACM SIGGRAPH, Carto Project Director, Outreach to the Computer Games Community Project Director, International Cartographic Association Commission on Visualization & Virtual Environments Committee, and Course Proposals Reviewer

THERESA-MARIE RHYNE, Afrigraph 2004 Program Committee (4th International Conference on Virtual Reality, Computer Graphics, Visualization and Interaction in Africa)

THERESA-MARIE RHYNE, Information Visualization Conference 2004 (IV04) Programme Committee

THERESA-MARIE RHYNE, 3rd International Conference on Entertainment Computing, ICEC 2004, Scientific Program Committee

THERESA-MARIE RHYNE, UNC TLT Conference, 2004 Program Committee

THERESA-MARIE RHYNE, NC State's EDTECH EXPO, 2004 Program Committee

THERESA-MARIE RHYNE, CCART (Course Content Accessibility Response Team), DELTA liaison and Interim Chair

EXTERNAL AWARDS

SHARON P. PITT, Frye Leadership Institute Fellow, 2004.

THERESA-MARIE RHYNE, Biography listed in Marquis Who's Who in American Education, 6th Edition.

REFERENCES

Kaminski, K. (2000). Infusing technology into the classroom: A comparison of three faculty development workshops DEMM session. *TechTrends*, 44(3), 38-39.

Rebaza, C. (1998). Where are they? Why technology education for teachers can be so difficult, *The Technology Source*: Michigan Virtual University.

