WE SEEK TO IMPROVE THE QUALITY

HARNESSING TECHNOLOGY TO PROVIDE

FOR ALL LEARNERS. IN THIS WAY WE HOPE

CHALLENGES OF A CHANGING SOCIETY.
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Vision

We seek to improve the quality of education by harnessing technology to provide ready access for all learners. In this way we hope to meet the challenges of a changing society.

Mission

Transformative educational experiences benefit a complex, global society and are key to a quality future. DELTA collaboratively applies expertise in innovative technologies and pedagogies to solve instructional challenges in an efficient, effective and service-oriented environment, with the overarching goal of helping faculty build student success.
From the Vice Provost

NC State’s 125th anniversary theme of “Tradition and Transformation” is not only a fitting description of what our university is all about — it also appropriately describes what’s going on in DELTA. DELTA was born in January 2000, 12.5 years ago, so we’ve been a part of just ten percent of NC State’s rich history. The genesis of DELTA was the vision of Provost Kermit Hall, who saw that the world was becoming seamlessly connected by rapidly advancing technologies that would transform education in ways that were inevitable, though not fully understood at the time. DELTA remains true to that vision as we pursue our mission to help faculty build student success through collaboratively applying innovative technologies and pedagogies, both on campus and at a distance, all while preserving our university’s tradition of excellence in education.

As we look to the future, our university must come to terms with the fact that we are serving a new generation of students who have never known a world without the Internet, social networks, online media, or the ability to tap into the world’s vast knowledge base in milliseconds with just a few keystrokes on a Web browser or smartphone.

As we look to the future, it certainly exemplifies my cliché reminder that I often preach at DELTA staff meetings: “DELTA means change!” (Yes, I’m an engineer with an undergraduate degree in math.) We implemented a major internal reorganization to meet the exploding demand for academic video capture across the campus. We expanded our efforts in Large Course Redesign in direct response to Goal #1 of the new NC State Strategic Plan, “Enhance the success of our students through educational innovation.” We completed the successful transition of our primary learning management system from the proprietary Blackboard Vista platform to the open source Moodle platform. We convened working groups to research and plan for three major technology transitions, including the replacement of our synchronous learning management system, Elluminate, and major upgrades of Moodle and Mediasite. We re-conceptualized our highly successful Summer Institute program and transformed it to serve more faculty in a more flexible format, called Summer Shorts. We worked with the colleges to successfully launch several new online programs, such as the Master’s in Parks, Recreation, Tourism and Sport Management, despite ongoing state budget challenges that have limited the overall growth of distance education in recent years. We developed a reusable tools initiative to make some of our more popular in-house developed educational innovations, such as the Virtual Viewer, Learning Path, and Flashcard Study Tool, available for faculty to use in their courses across the campus.

Perhaps the most transformational event in FY 2011-12, in terms of its future implications for online teaching and learning at NC State, was the university’s decision to move forward with recommendation #1 of the Provost’s Distance Education Task Force. The task force had been charged to make recommendations that would help lead to the unification of on-campus and distance education instruction in three critical areas: 1) tuition and fees, 2) funding of courses and programs, and 3) faculty workload and compensation. Recommendation #1 was to eliminate the inequities resulting from the different methodologies specified by UNC policy for charging tuition and fees for distance and on-campus instruction. The policy, which took effect in 1998, did not anticipate the modern world of “blended” instruction where many students take advantage of both online instruction and traditional face-to-face classes to best meet their learning needs. An unintended consequence was that students in this category were artificially disadvantaged, or in some cases advantaged, by the separate algorithms for determining tuition and fees for the two modes of instruction. While the details are too complex to explain here (go to www.ncsu.edu and search for “DE task force” to get the full story), the inequities had been a limiting factor in the ability of full-time students to take advantage of the flexibility of online courses for more than a decade. After a great deal of planning and analysis, the university made a decision to eliminate the inequity for on-campus degree-seeking students beginning in the fall 2012 semester. As I write this letter in November 2012, I can share with you that the resulting demand for online courses has been overwhelming. The percentage of the on-campus student population taking one or more online courses has increased by one third, from 18% of the population last fall to 24% this fall. Early registrations for the spring indicate that demand is continuing to rise.

As we look to the future, our university must come to terms with the fact that we are serving a new generation of students who have never known a world without the Internet, social networks, online media, or the ability to tap into the world’s vast knowledge base in milliseconds with just a few keystrokes on a Web browser or smartphone. DELTA will continue to evolve its platforms and services to help faculty address the learning needs of this new generation of students, proudly supporting the university’s strategic goal of enhancing student success through educational innovation.

Tom Miller, Vice Provost, DELTA
While it may not have been apparent from the outside, DELTA reorganized in FY 2011-12. This year Dr. Tom Miller, DELTA vice provost, was named senior vice provost of Academic Outreach and Entrepreneurship. Miller now oversees Continuing Education, DELTA, Engagement and Outreach, the Entrepreneurship Initiative (EI) and the General H. Shelton Leadership Center. Miller and DELTA senior management needed to redistribute some of Miller’s responsibilities to DELTA staff, which provided a timely opportunity to make structural changes within DELTA. These changes aimed to increase organizational efficiency, which in turn would help DELTA reach more faculty and students with our services.

**DELTA Reorganizes to Improve Internal Efficiencies**

ABOVE: DELTA’s new organizational chart represents a 2012 restructuring of units and groups to meet demands on our services.
“Student success is a core part in the new strategic plan for the university and we have a major role in fostering that success,” said Miller. “The importance of our role is increasing and we plan to emphasize student success more as we go forward. I think the new organizational structure will be supportive of that concept.”

One of the key changes in the reorganization addressed the increasing demand for instructional video on campus. A new Media Production Services team focused on video production, lecture capture and media distribution within DELTA. This team became part of the Distance and Distributed Education unit led by Dr. Rebecca Swanson.

“Distributed Education’ represents our commitment to support faculty’s incorporation of DELTA’s learning technologies into both online and on-campus courses,” said Swanson. “The DDE group creates synergy between the Distance Education units and video and lecture capture production services.”

Educational Technology Services and Instructional Support Services also merged to create the Instructional Technology Support and Development unit led by Dr. Donna Petherbridge. This fusion joins teams who maintain NC State’s academic technology infrastructure and provide pedagogical support and production assistance focused on teaching and learning with technology.

Another key change is that Marketing and Partnership Development added the responsibility of serving as special assistant to the senior vice provost for Academic Outreach and Entrepreneurship. The new responsibilities include identifying opportunities that leverage synergies, collaboratively coordinating special projects and developing strategic partnership initiatives with all Academic Outreach and Entrepreneurship organizational leadership.

For the average faculty member, the DELTA reorganization went unnoticed. DELTA continued to provide the same technologies and services and the contacts remained the same for training and support. However, internal changes poised DELTA for increased impact.

“Better communication, both internally and externally, will create better teaching and learning environments for faculty and students,” Swanson said.
Distance Education Extends NC State’s Reach

At NC State, Distance Education (DE) means different things to different people. For undergraduate Philip Hurst, it means that after a 34-year break from classes, he can complete his bachelor’s degree at NC State. For Associate Professor Michael Kanters, it means he can provide a tight-knit, graduate-level program for working professionals near and far. For 15,557 students enrolled in 1,689 courses and sections in 76 degree, certificate and teacher licensure programs, it means access, convenience and a new style of learning that represents the best of what NC State has to offer.

Currently a senior, Hurst is taking distance education courses to finish his degree. He expects to graduate in spring 2013, 36 years after his first day of class as a member of the Wolfpack. Upon completion of his studies, Hurst plans to go into business with his son.

Hurst shared with us some thoughts on his NC State Distance Education experience thus far: “My experience with the Distance Education services at NC State University is simply fantastic. The online availability and the user-friendly platforms of delivery for the courses will enable me to complete my bachelor’s degree in the spring of 2013. All instructors, DELTA services personnel and NC State University personnel are professional and eager to help. The course materials are on the same level with seated college classes, and in my opinion, the comprehension level may be higher. Distance Education course offerings and website information are readily accessible. I am so thankful for the opportunity, at the age of 55, to better myself through education. The NC State Distance Education program receives my highest recommendation.”

ABOVE: Distance Education has grown steadily, with a 17 percent average annual growth. In FY 2011-12 DE student credit hours totaled 94,386.

**Reaching the Finish Line**

Philip Hurst is not what you would call a typical NC State undergraduate. Hurst began his undergraduate studies at NC State in 1975. In 1977 he withdrew from the program to open his own construction company. Due to the effects of the economic downturn on his business, he returned to NC State in spring 2011 to continue his degree in Business Administration.

While Distance Education’s enrollment trajectory slowed this year as planned, with a more moderately paced enrollment growth of 6.8% over the previous year, the slower growth rate allowed us to focus more attention on quality measures and outcomes that align with university and UNC-General Administration strategic goals.


**Extending the Curriculum**

Each year Distance and Distributed Education supports the development of new DE programs that fulfill educational needs within North Carolina. After several years of planning and collaboration with DELTA units to tailor the program particularly to the needs of working professionals, the College of Natural Resources launched a new online Master’s in Parks, Recreation, Tourism and Sport Management.

The first cohort began in fall 2010, with an initial class of 30 students. Seven-week-long online courses accommodate schedule constraints and foster interactions and community-building between students, faculty and support staff. The two-year program graduated 26 students in spring 2012. Two additional program cohorts began in fall 2011 and fall 2012.

Dr. Michael Kanters, associate professor of Parks, Recreation and Tourism Management, championed the program and was instrumental in its development and implementation. Looking back at the program development, Kanters identified four significant factors that contributed to program success and its commendable student retention and graduation rates:

- The quality of the teaching, the faculty and the online course development and delivery are critical to a successful DE program.
- The program emphasizes the importance of personal contact. From the first inquiry, to admission, and through graduation, students are connected to the NC State community with prompt responses to questions and readily available access to services and support.
- The cohort model enables students to come together as a group for team-building. This begins with a short campus visit so students can meet each other and the faculty and learn the technologies they will use during their studies.
- An accelerated course format, with two courses taken sequentially each semester, serves two purposes. It allows students to focus on one course at a time while continuing to meet their work responsibilities. Taking two courses each semester speeds progress toward degree. “It’s simple math,” said Kanters. “For adult learners, life circumstances sometimes preclude their ability to continue their studies. A shorter time frame for completion of the degree decreases the potential for disruption of studies.”

The online Master’s in Parks, Recreation, Tourism and Sport Management was just one recently started DE program. NC State’s Poole College of Management launched their Online MBA Program in fall 2011 with an initial cohort of 25 students. The program was developed specifically to meet the need of working professionals for schedule flexibility while pursuing an MBA degree.

**TOP:** Students take tests for their DE courses at the testing center in Venture II on Centennial Campus. In FY 2011-12 DELTA’s testing services administered 24,250 exams in its two testing facilities.

**BOTTOM:** Dr. Michael Kanters discusses his experiences with DE program planning and development in a faculty panel at the DELTA Open House.
In an increasingly interconnected and time-constrained world, course delivery method is an important factor for prospective students. With the flexible, multimodal possibilities presented by the Internet, the availability of distance education (DE) can be a deciding factor when picking a graduate school and program. To increase the visibility of our DE programs, DELTA partnered with NC State’s Graduate School in FY 2011-12 to complete a website redesign project and student recruitment pilot. This project resulted in the development and delivery of a strategic, high-performing website (www.ncsu.edu/grad/future-students/index.php) that increased efficiency of graduate student recruitment. An effort to reach our prospective students and communicate effectively with them, this project made steps toward engaging a target audience and increasing awareness of NC State’s DE programs in a cost-effective way.

Justification for Project

Strategic communications are increasingly important as today’s students have a great deal coming at them. Before the project began, the Future Students webpage of the Graduate School website listed no DE graduate programs, contained no links to the DE website, and had no user tracking capabilities.

Without tracking capabilities, it was hard to evaluate how well the website was working. In order to make sure that we’re meeting our audience we implemented tracking to calculate the marketing cost per enrollment and determine the return on investment. We can now weigh what was done with its cost and how well it worked.

Partnership

The leadership support provided by DELTA and the Graduate School was critical to the success of this project. Our key goal was to ensure that the graduate student recruitment and marketing for each organization was efficient, high quality and consistent with our expertise and our students’ greatest needs.

Together, we examined student recruitment processes, procedures, and resource sharing opportunities. Our partnership supports NC State’s Strategic Goal 4: “enhance organizational excellence by creating a culture of constant improvement.” We established collaboration between the two
organization’s technical and administrative staff and improved the use of technology, while updating our marketing strategies to match recent trends in student recruitment strategies.

The Graduate School acted as the content experts on the more than 200 programs listed on the page. Our marketing strategies and best practices combined with their content to create the new information entries for each of the degree programs. These new pages use a standardized page structure to clearly separate pertinent details like program type, exam requirements and delivery methods.

**Page Revisions**

The website revisions ensured that prospective students can learn about our campus’s graduate programs. We looked at the big picture to identify external and internal needs so we could leverage our resources to meet them.

Members of DELTA’s New Media and Applications Development teams collaborated on reworking the page’s front end and back end. The page is now search engine optimized (SEO), meaning that it shows up higher on search engine results. Keeping the prospective student’s perspective in mind, they made important information more accessible so users can gather details needed to make an informed decision. Users can now sort results based on subject area, degree level and delivery method (on campus or DE) and then the page returns a listing of programs fitting those categories. To accommodate different preferences, there are two available methods of sorting through the list of programs — either through drop-down menus or tabbed categories.

**Tracking Data**

We identified necessary factors needed to track with web traffic analytics and then decided on an approach and important criteria. For this project we added data tracking of users between the Distance Education and Graduate School website, user’s source and final destination, and how long it takes for a person to choose a program after viewing its listing for the first time. This data can be used to identify trends and determine if a page’s design is effective. DELTA marketing provided best practices and tactics for pay per click marketing, LinkedIn advertising, social media monitoring, and search and application trend analysis.

**Analytics**

To demonstrate best practices and develop a data strategy, we reviewed the Distance Education website analytics and data. Over a three month period the distance.ncsu.edu site had 44 percent more page views, 30 percent longer time on site for campaigns, an increased application action conversion rate, and a 51 percent reduction in cost per application due to SEO implementation and strategic marketing initiatives.

**Results**

This redesign project resulted in a better performing Graduate School website (Future Students section) that should better meet prospective student needs. The data and Google Analytics we implemented will provide efficiency gains and a give us a better idea of what’s working.

We hope to continue working together to reach qualified prospective students efficiently by sharing resources and best practices. If our efforts to improve graduate student recruitment and marketing communications help the right students find the right program, it will benefit both them and our university.
Dan Deter’s happiest days at work are the ones in which he remains invisible. As the associate director of DELTA’s Applications Support team, he and his team of four systems administrators maintain the hardware that powers WolfWare, a collection of online teaching and learning tools that comprise NC State’s learning management system. Each semester around 90 percent of the student body takes at least one class that uses a WolfWare tool: Moodle, Blackboard Collaborate (formerly Elluminate Live!) or WolfWare Classic. Every day students log in to take a quiz, read course materials, check their syllabus or work with classmates on a virtual lab. Deter’s team works steadily to keep all systems running smoothly so that students have continuous access to their courses.

“You never think about the people running the system unless something goes wrong,” said Deter. “The goal is to make it so that all of the work that goes into running an enterprise system is never noticed by the users.”

The Applications Support team is just one of the groups within DELTA who support WolfWare. Throughout FY 2011-12, more than 20 DELTA staff members worked to maintain and enhance NC State’s learning management system (LMS). The result of this continuous effort was improvement in back-end stability, front-end functionality, accessibility and shared governance.

Moodle Use Grows

During FY 2011-12, Moodle became the predominant LMS at NC State with campus adoption increasing significantly from the previous year (see http://delta.ncsu.edu/apps/lms_reports/). DELTA continued to support our legacy system, WolfWare Classic, and worked to incorporate its unique features into Moodle. Once DELTA can offer comparable features in Moodle (e.g., public file space, class mailing lists), WolfWare Classic will be retired.

| TABLE ONE: Number of R&R sections in Moodle and WolfWare Classic, 2-Year Comparison. |
|-----------------|-----------------|-----------------|
|                  | FY 2010-11      | FY 2011-12      | % Change |
| Moodle           | 4,855           | 6,576           | +35%     |
| WolfWare Classic | 3,297           | 3,047           | -8%      |

Customizing Moodle

When a learning management system is effective, faculty members teach more efficiently, students access their course materials with ease, and the tool doesn’t get in the way. With this vision in mind, DELTA implemented several changes to Moodle to enhance the student experience and save instructors time in course administration.

To include our users’ valuable feedback, we implemented a feature request system (http://featurerequest.wolfware.ncsu.edu/), allowing anyone at NC State to submit a request, view requests and vote on features for Moodle. Every feature request is reviewed by the LMS governance committees and evaluated for need, breadth and depth of impact, cost and enhancement of the user experience among other criteria.

As a result of this effort, DELTA added several new features to Moodle including:

• a TurningPoint plugin for classroom response clickers
• an Elluminate plugin to support synchronous online activities
• a Mass Actions block that allows instructors to manipulate multiple items at once (e.g., move, copy, delete) which is a time-saver when making broad modifications to a course
• an Equella plugin to aid the Digital Asset Management Task Force in evaluating this learning object repository
Synchronous Switch

When instructors want to incorporate live meetings, office hours, or events into their class while accommodating students in different locations, they turn to NC State’s synchronous learning management system (SLMS). Our SLMS, Elluminate Live!, has been a popular classroom technology, especially for distance education, and saw increased usage in FY 2011-12. However, in July 2010, DELTA learned that Elluminate was acquired by Blackboard and would be replaced by a new product called Collaborate. As a result, DELTA, with the approval of the LMS Steering Committee, worked to deploy Collaborate as a temporary solution.

DELTA released Collaborate to the campus in summer 2012 and turned off Elluminate for live sessions in August 2012. Instructors started to transition to Collaborate quickly and smoothly. Also during this time period, DELTA formed a campus committee to conduct an extensive evaluation of the synchronous learning management system, with the goal of choosing a more permanent solution by fall 2012.


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<th>Category</th>
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Usable and Accessible Tools

LMS accessibility remains a strong priority for DELTA. When Moodle 2 was released, DELTA, in partnership with the Office of Information Technology, began an extensive review to determine if (and when) we could upgrade to this version, which could provide increased accessibility. The evaluation team quickly identified a number of critical issues that needed to be addressed before DELTA could move to Moodle 2. For example, users with screen readers would struggle to interact with portions of Moodle 2, therefore we needed to improve the experience of using a screen reader in this new version. DELTA and our OIT partners began working with the Moodle community to make sure that all of the critical fixes were made, so that we could continue with our plan of moving to Moodle 2 by May 2013.

We submitted 64 individual bug reports to the Moodle.org bug tracker to document specific accessibility issues. We consulted with the programmers at Moodle.org extensively, testing fixes and providing feedback. DELTA also gave back to the international Moodle community by contributing six patches to correct errors in the quiz module, calendar and lesson tool. This work will continue in 2012-13 and will include the contribution of additional patches to fix outstanding accessibility issues.

Shared Governance

DELTA’s LMS leadership is on the leading edge of a national trend in improved information technology governance. The LMS governance system entered its third year of operations, now involving more than 45 representatives from across campus in setting the strategic direction of our LMS. By including strategic partners and members of each college in decision-making processes, we strive to better meet user’s needs and develop a stronger product.

The LMS Best Practices and Support Committee was heavily involved in vetting feature requests and testing possible enhancements from a user perspective. The LMS College Needs and Policy Committee created many Standard Operating Procedures (https://wolfware.ncsu.edu/sops) to guide WolfWare use and provided feedback on feature requests. The LMS Technical Committee focused on making sure that any system changes were sound and would not degrade performance. The LMS Steering Committee coordinated work across the groups to ensure that efforts remained consistent with our strategic direction.
Taking a Dynamic Approach to Helping Instructors Stay Up-to-Date

At DELTA we try to practice what we preach. We encourage instructors to meet their students where they are and to be considerate of learning styles and preferences. When it comes to training and support, we try to do the same.

Although this year brought a new training program to organize, a LMS switch, ongoing workshops and seminars, new instructors to train, and a heap of Help Desk calls, DELTA’s Instructional Support Services stayed ahead of demands for training and support.

With an aiding arsenal of training programs offered year round, custom trainings, instructional house calls, and LearnTech support, we were able to meet and exceeded the demands of the always-evolving NC State campus. And, judging from the feedback we collected, the Instructional Support Services team’s dedication has paid off.

Training and Support Stats:

- Workshops and Seminars: 142
- Instructional House Calls: 286
- Custom Trainings: 18
- Online recording views: 2,546
- Quick Training tutorial views: 1,001
- Remedy Help Desk calls: 4,976
- Summer Shorts enrollments: 228 (attended) 110 (unique trainees)

Summer Shorts in Instructional Technology

This year, we launched a new week-long training program called “Summer Shorts in Instructional Technologies.” This program was a much more flexible approach than our traditional Summer Institute. We offered workshops and seminars in a “come as you’d like” format where participants could register for as few or as many as they wanted.

Over 100 people participated in our morning sessions. The most popular session topics included: faculty advice about starting with new technology, transitioning to Blackboard Collaborate, course “flipping,” and legal, copyright and accessibility concerns in course design. There were a total of 20 sessions, with 68 people attending more than one session and 12 people attending five or more.

One participant, Anita Croasmun, instructor in the Department of Communication, said the program was a great help in redesigning her online classes.

“One is no exaggeration to say that everything I experienced during the week can be applied to my current course redesign effort,” Croasmun said. “I was pleased to learn how much support faculty has from the Distance Education professionals, who not only support current online delivery systems but also explore new tools and methods for delivery.”

Croasmun and other attendees commended the way the offerings ramped up from introductory-level to more advanced throughout the course of the week. Many attendees also praised the “come as you’d like” format, which was a departure from the previous summer offering’s week-long cohort model.

“I found what I needed,” said one Summer Shorts attendee, “with the added benefit of face-to-face formats: immediate feedback from facilitators and the opportunity to share information with other attendees.”
Workshops, Seminars, and Trainings

Faculty, staff and graduate students took advantage of nearly 450 of our training opportunities. Face-to-face workshops and seminars continued to be our most popular delivery method, drawing in 1,093 participants who attended a total of 142 offerings. Our offerings this year covered a variety of tools and topics such as Moodle, Mediasite, Blackboard Collaborate, Camtasia, Teaching an Online Course, Accessibility, Course Flipping and more. With the retirement of Elluminate Live!, instructors made the switch to Blackboard Collaborate. To aid this transition, we created and held several workshops and created situation-specific instructions.

Although ISS is a familiar resource for most departments across campus, the College of Agriculture and Life Sciences, the College of Humanities and Social Sciences and the College of Education tend to be our most frequent and repeat attendees. For those who couldn’t attend our regularly scheduled classes, we provided 286 instructional house calls, offered 18 custom trainings, and provided online training opportunities.

Online Training Materials

With the time constraints instructors face, it’s no surprise that 2,546 people took advantage of our easily accessible, online recordings available via Mediasite. These resources are intended for those who may not be able to attend our face-to-face classes, or just need a refresher on a particular tool or resource. This year we added 11 new recorded workshops to our library.

QuickTrainings

QuickTrainings are our short video tutorials concerning instructional technology tools and techniques. This year, there were a total of 1,001 unique QuickTraining views. With the adoption of Blackboard Collaborate, we added four original videos and provided links to four tutorial videos created by Blackboard. As usual, our synchronous learning management system videos and our Moodle videos proved to be the most popular.

ABOVE: Our most popular QuickTraining tutorials served as valuable resources for instructors needing quick, convenient training in a specific learning technology.

LearnTech

Every year, when late summer rolls around and faculty started getting ready for a new academic year, it is “all hands on deck” at the LearnTech Help Desk. Calls trail off as courses get underway and don’t spike again until the next semester brings another round of new classes, faculty, and students.

DELTA’s support service for all the learning technologies used by NC State, LearnTech resolved a total of 4,976 Remedy help desk calls, a majority of which were Moodle and Elluminate/Blackboard Collaborate related. Despite the large number of calls this year, LearnTech was able to provide faculty with the assistance they needed.

Faculty Feedback

We can see the ISS team motto of “We are here to help” at work in feedback from the campus’s teaching community such as: “I was so impressed with the courteous and expert service! Thank you so much for a job WELL DONE!!” and “I don’t know what I would do without DELTA. They are patient, kind and solve the problem. Please keep up the good work. Thank you!” Satisfied attendees like these are the reason DELTA is happy to continue supporting our university.

Faculty Quotes

“Very interesting workshop. Good job explaining the concept and the potential benefits; really exciting and engaging! Thanks!”

“Very well done. Thanks for providing all these different ways of getting trained!”

“Great introduction to Moodle quizzes. It was an immense help in learning about how to set up, maintain and read quizzes and quiz results.”

“Good job explaining the concept and the potential benefits. Showing us how to do it ourselves was great — it made it seem easy. Very good use of the 90 minutes allocated.”
With university enrollment continuing to grow, scheduling class space is an increasingly difficult challenge. Because the physics laboratories are often near capacity, arranging lab space can be a tough task. To address this, the physics department sought an alternative to traditional laboratory exercises.

With a grant from the DELTA Course Redesign (CR) Program and support from a CR team, the Physics Department piloted a new project, Kitlabs, for PY 205N: Matter and Interactions in spring 2012. A Kitlab is a small set of equipment that groups of students check out and use to complete their lab activities wherever they choose. The only limitation is the need for Internet access to submit the written components of the lab on WebAssign. Their progress is monitored by a teaching assistant, who can answer questions remotely and keep them on track through Blackboard Collaborate.

A feasibility study of PY 205N found that converting half of all sections to Kitlabs was an effective approach to reducing the need for lab space. Student surveys indicated no major difference in preference between traditional labs and Kitlabs. The teaching assistant said that using Collaborate and WebAssign allowed him to monitor students’ progress and keep them on task as well as, if not better than, being in the lab.

The Course Redesign Initiative

The Kitlabs project is just one of many innovative course redesigns made possible by DELTA’s Course Redesign initiative. DELTA and the NC State Registrar’s Office work together to identify high enrollment undergraduate-level courses that can benefit from the initiative. Courses are chosen based on a combined analysis of grade distributions, course drop rates and repeats, and other factors.

By providing financial and staff resources for faculty to redesign a course, CR helps faculty develop strategies that blend effective teaching and learning with innovative uses of instructional technology. Implementing these strategies is a major step toward improving the learning outcomes of undergraduate students.

In FY 2011-12, DELTA worked closely with faculty new to the program (PY 205N and MA 341) and continued collaborating with professors who offered their redesigned courses for the first time (ST 311, PY 211, MA 141). Though each course team was unique, our core DELTA team consisted of a CR lead, instructional designers and instructional technologists. We helped faculty from the initial analysis stage through evaluation and assessment of the courses.

The CR teams used the blended learning redesign model. This retains the basic structure of the traditional courses while supplementing lectures and textbooks with technology-based, out-of-class activities.

The common goals for each project were to increase student success, establish consistent content coverage across all course sections (for courses that consist of multiple sections), provide in-class and online student-centered learning activities, and improve student knowledge transfer by focusing on mastery learning. To determine whether or not these goals are met, we conduct course redesign evaluations.

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In FY 2011-12, DELTA worked closely with faculty new to the program (PY 205N and MA 341) and continued collaborating with professors who offered their redesigned courses for the first time (ST 311, PY 211, MA 141). Though each course team was unique, our core DELTA team consisted of a CR lead, instructional designers and instructional technologists. We helped faculty from the initial analysis stage through evaluation and assessment of the courses.

The CR teams used the blended learning redesign model. This retains the basic structure of the traditional courses while supplementing lectures and textbooks with technology-based, out-of-class activities.

The common goals for each project were to increase student success, establish consistent content coverage across all course sections (for courses that consist of multiple sections), provide in-class and online student-centered learning activities, and improve student knowledge transfer by focusing on mastery learning. To determine whether or not these goals are met, we conduct course redesign evaluations.

Redesign Evaluations

We conduct quantitative and qualitative assessments to gauge the impact of the redesign on student learning outcomes. The CR team enlists the help of a graduate research associate from the Department of Statistics who provides valuable assistance in measuring the redesign’s impact on student learning by collecting and analyzing data.

In response to increasing enrollments and finite institutional capacities, faculty and DELTA worked together to find more efficient ways to utilize faculty and teaching assistant resources. We evaluated how redesigning a course with multiple sections reduced the need for classroom space, how the use of Moodle for learning gave students 24/7 access to course materials versus receiving the course content in lecture alone, and how automated assessment gave students repeated attempts at homework problems.
We also considered educational efficiency as a result of redesign efforts, which gave more breadth to the impact CR had on students and faculty.

**Measuring Impact on Student Learning**

By using mid-semester online course evaluations, we were able to determine which adjustments to make to the courses in order to improve results. We tracked course drop rates and grades to determine if the redesign could be attributed to any improvements in student learning.

Our evaluations showed that CR had an overall positive impact on student learning. CR proved most effective for marginal students. While A, B and C grade distribution remained fairly consistent, the number of students receiving D and F grades decreased after redesign. D and F grades and course withdrawals decreased by about 5 to 10 percent in redesigned courses (percentage of improvement varied in each discipline).

We tracked students from redesigned course to higher-level courses in a series to determine the impact of the changes. Our evaluations suggest that students who successfully complete a redesigned course are better prepared for transitioning to advanced-level courses in a series. Specifically, we found a positive linear trend between MA 206 grades and MAE 208 grades and between MA 111 and MA 141 grades.

**Increasing Educational Efficiency**

In response to increasing enrollments and finite institutional capacities, we worked with faculty to find more efficient ways of using faculty and teaching assistants’ time. We evaluated how redesigning a course with multiple sections reduced the need for classroom space; how the use of Moodle for learning gave students 24/7 access to course materials versus receiving the course content in lecture alone; and how automated assessment gave students repeated attempts at homework problems. The Kitlabs project was another step toward efficiency in finding new, effective ways to offer lab sections.

The redesign of MA 341: Applied Differential Equations was also efficiency-oriented. It involved distributed development of reusable learning objects, automated assessments and shared materials across multiple courses and majors. The Web-packages created for the course were flexible, giving each course instructor the opportunity to tailor the course materials and their implementation to fit their own teaching styles. The basic structure of the traditional course was supplemented with technology-based, out of class activities, automated assessment with instant feedback, and online projects tailored to different majors. The course used Moodle and WeBWork to measure students’ skills with automated assessments allowing repeated attempts and providing prompt and frequent feedback to students and instructors. Additionally, the professors were happy to report that even after increasing the difficulty of the course, student learning remained the same.

These results have encouraged DELTA to continue redesign efforts and expand this initiative’s reach by supporting more gateway courses and redesign methodologies. In Academic Year 2012-13, MB 351: General Microbiology and ARC 241: Introduction to World Architecture will each be “flipped.” Course flipping is a redesign model where lectures are replaced with online learning so that students can be engaged in class activities during course hours.

We will continue to track student learning outcomes to determine if improvements in grades, attrition rates and knowledge transfer to subsequent courses are sustained over a period of semesters.

**3 LCR Pilot Grants Were Awarded This Year:**

1. **PY 205N: Physics for Engineers and Scientists** — The objective for redesigning the course was to find a solution to the increase in student enrollments in the course without the laboratory space to accommodate the growth. The redesigned course studies the introduction of Kits into the PY 205N laboratories in a weekly alternating system whereby students perform in-house lab experiments and Kitlab experiments in alternating weeks.

2. **MA 341: Applied Differential Equations** — The redesign of MA 341 is structured as a student-centered course incorporating new teaching strategies and technologies. The basic structure of the traditional course is supplemented with technology-based, out of class activities, automated assessment with instant feedback, and online projects tailored to different majors.

3. **MA 141: Calculus I** — This course continued to be redesigned to improve student learning, establish consistent content coverage across all sections, provide in-class and online student-centered learning activities, and track student success in higher-level courses.

**Common Course Redesign goals:**

- increase student learning outcomes
- improve knowledge transfer
- develop student-centered learning activities
- establish consistency across course sections
- blend effective teaching and learning with innovative uses of instructional technology

10 courses have undergone redesigns since the program started in 2008:

- ACC 210: Concepts of Financial Reporting
- GC 120: Foundations of Graphics
- MA 107: Precalculus
- MA 111: Precalculus Algebra and Trigonometry
- MA 141: Calculus I
- MA 341: Applied Differential Equations
- MAE 206: Engineering Statics
- PY 205N: Physics for Engineers and Scientists
- PY 211/212: College Physics
- ST 311: Introduction to Statistics

We're continuing to evaluate, assess, and adjust these courses.
Distance Education and Media Production Team up to Meet Video Demand

One of the leading catalysts in DELTA’s 2011 reorganization was a need to consolidate DELTA’s Distance Education and Media Production Services teams. The resulting Distance and Distributed Education (DDE) unit helped streamline operations and create synergy among teams that provide services and support to faculty and students, both on campus and at a distance. The benefits of this merger are already evident in the way DELTA is strategically approaching the explosive demand for video production in online instruction at NC State, all the while focusing on improving quality.

Course Design with the Student in Mind

Joanna Stegall didn’t hesitate to say yes when DELTA asked her to pilot a new type of physical education video production. An instructor in Health and Exercise Studies (HES), formerly Physical Education, Stegall was looking for a way to put her HES 101: Fitness and Wellness course online. Because this course fulfills a General Education requirement for all students, offering HEC 101 through Distance Education would give students flexible options in course scheduling.

“I love to teach even if it means I have to teach through a video camera,” Stegall said. “I want to be able to reach as many students as possible.”

To start the project, Stegall sat down with Melissa Williford, director of Distance Education Administrative Services, and John Gordon, broadcast and emerging media manager, to begin the extensive planning that would lead to a successful project.

“Successful video projects begin in the early planning or design phase,” said Gordon. “Thinking through the information the faculty wants to deliver, the breadth and limits of video technology, and then creating the production plan based on these answers is the secret to creating effective online learning video components. It’s my favorite part of the entire process.”

The result was a complete course of professionally produced videos broken into three categories: instructional, workout and lecture. Historically courses of this type include only workout videos, which can leave students confused on technical elements and terminology in the workout. By adding accessible, labeled instructional videos, Stegall provides a catalog of exercises for the course, which should help students master the content.

“The factors that made this project a success were the planning, communication, knowledge, and time commitment that went into making it,” Stegall said. “I am overwhelmed with gratefulness. I think that this course will be great for all students, from novice to experienced exercisers.”

HES 101 is just one example of the thousands of hours of instructional video produced for NC State instructors by DELTA’s Media Production Services during FY 2011-12.
Central Control Room Provides Scalable Solutions

When demand for video classroom production increases, DELTA’s Video Communication Services (VCS) has to step up to the challenge. In the last four years, VCS-supported enrollment grew at an average annual rate of 19 percent. While VCS had followed a model of one technician supporting one video classroom at a time, this solution would not scale to match the rapid growth in demand. After years of planning, the Central Control Room became operational in spring 2012, providing a centralized location for room technicians to monitor and support technology for multiple video classrooms simultaneously.

“No longer do you see technicians running TV cameras or pushing record buttons in dedicated control rooms,” said Tony Pearson, associate director of Video Communication Services. “They are now consistently engaged in instructional support for academic faculty and staff using a variety of media and technology solutions administered remotely from a central control platform.”

Technicians can now monitor each of the nine video classrooms and two mini-studios where instructors record course content for delivery to current and future students.

Lecture Capture Takes Off

When DELTA first piloted a lecture capture service in 2008 to record lectures and presentations for Distance Education courses and events, very few instructors were aware of this service. By 2011, exponentially increasing demand for lecture capture necessitated an accelerated process to move from pilot to enterprise-level support for more than 100 Mediasite recorders located across campus. The number of lectures and presentations recorded with lecture capture technology totaled 10,570, a 27 percent increase over the previous year. Nearly 11,000 individuals viewed presentations with 504,820 total viewings, a 73 percent increase over the previous year.

Adding to the existing lecture capture service, DELTA partnered with the Office of Information Technology (OIT) in fall 2011 to provide lecture capture for face-to-face instructors teaching in 45 Mediasite-equipped ClassTech classrooms. The intent of this service was to provide lecture capture as a supplemental resource for students. These recordings of classroom lectures and discussions allowed students in participating classes to review material multiple times and increase their retention of the material. A survey of instructors and students who participated in the pilot showed the new tool to be useful.

The Mediasite Advisory Team, comprised of college and OIT representatives, met regularly to formulate procedures and best practices for centralized lecture capture support and to prepare for enhanced features in future upgrades, including streaming media capabilities, a feature often requested by students who use mobile technologies.
Crafting an Online Section of ANS 230: Nutrition of Domestic Animals

Every year, DELTA awards Innovation in Distributed Education Applications (IDEA) grants to courses to promote the innovative use of instructional technology in distance education courses. These grants provide both funding and personnel hours to support course planning, design and development. Dr. Joan Eisemann, professor in the College of Agriculture and Life Sciences (CALS), received an IDEA Grant to work with DELTA on the development of a Distance Education version of ANS 230: Nutrition of Domestic Animals, an introduction to nutrition, digestion and absorption in domestic mammals. This course covers topics such as: major nutrient classes and their functions, feed classification and chemical analysis, feed processing and nutrient requirements.

Course Development

Eisemann and Dr. Sung Woo Kim, professor in CALS, set out to create a shared Distance Education (DE) version of their course, which they teach in alternating semesters. DELTA instructional designer Cathi Phillips acted as both the project manager and instructional designer for this course. She worked with both instructors to create course content and activities, ensuring that the experience for students of both instructors was consistent.

For many courses, consistent content starts with the textbook. But for ANS 230, in the absence of a formal textbook, the course text takes the form of Moodle Books. Eisemann and Kim divided responsibilities for developing content and reviewed each other’s writing to ensure all essential information was included in each topic. Once finalized, their content was incorporated into customized Moodle Books. Each chapter includes an introduction, learning objectives, keywords, content, activities and a summary. Course activities included PowerPoint presentations, interactive activities, additional readings, self-quizzes and narrated explanations of complex diagrams.

Creating Animations to Illustrate Difficult Concepts

A primary objective for this project was to explain difficult concepts by using well-developed instructional materials. One of the most interesting parts of the project was the opportunity to develop creative, engaging, educational animations to explain four concepts deemed by instructors to be the most difficult to master. The animation design and development process included multiple sessions during which design students met with the faculty experts to discuss concepts in detail and share in-progress character sets, storyboards and animations. Eisemann and Kim both expressed delight in working with our design students on this project. When the animations were finished, they were integrated into the online textbook with related content and activities.

Reflections on the First Semester of Delivery

Since the end of the development phase, Dr. Eisemann has taught both DE and face-to-face offerings of ANS 230. According to Eisemann, students in both versions of the class found the animations to be effective learning materials. She also found that developing consistent content for the DE course made a positive impact on the face-to-face course. After reorganizing the traditional course to align with the DE course, both versions of ANS 230 are more consistent. However, she observed that even though content is shared between the sections, online teaching is different. She was impressed with discussions among DE students during their assigned topics because students seemed more apt to reflect on and use course materials and other resources when writing their answers. According to Eisemann, the online forums seemed to allow for more in-depth discussion with greater participation than might be possible in a face-to-face setting.

Other Course Production Projects

ANS 230 was one of the many courses that DELTA staff worked on in FY 2011-12. Our Instructional Innovations Services staff, with support from others within DELTA, worked with faculty on 25 major course production projects. We also awarded 14 new IDEA Grants across five different academic colleges and Student Affairs this year.

- https://gallery.delta.ncsu.edu
  Visit the DELTA Course Gallery to see other course production projects we’ve worked on.
- http://delta.ncsu.edu/ideagrants
  Learn more about IDEA Grants.
Course Production

IIS staff put more than 20 hours of work into 25 different courses during FY 11/12.

- ANS 110
- ANS 220
- ANS 230
- ANS 550
- ARE 112
- ARE 345
- BAE 578
- CS 111
- ED 599
- ENG 251
- FOR 491
- FTM 219
- IS 200
- MBA 500
- MBA 503
- MBA 504
- MBA 530
- MBA 550
- MBA 560
- MBA 610
- MUS 120
- PB 200
- PS 303
- TDE 385
- TMS 211

Top: Dr. Sung Woo Kim and Dr. Joan Eisemann teamed up to create a shared Distance Education version of ANS 230: Nutrition of Domestic Animals.

Middle left: Dr. Gerald Huntington learns to produce video segments for his course on applied ruminant nutrition with Dr. Jim Green.

Middle right: A series of animations was produced for ANS 230 to help students better understand difficult concepts.

Bottom: DELTA assisted Dr. Scott Whisnant in course production for ANS 220: Reproduction and Lactation in Domestic Animals.
The charge for DELTA’s Instructional Innovation Services (IIS) team is to
• work collaboratively with instructors to explore new tools and methodologies,
• partner tools and methodologies with best practices in teaching and learning, and
• distribute this knowledge through course development, reusable tools and materials, and shared resources.

Almost all of our work is done in collaboration with instructors who come to us with ideas about how to improve their course. Instead of starting with the particular technology or solution that an instructor would like to pursue, our process most often starts with the teaching or learning challenge the instructor would like to solve. In the last few years, this approach led to the creation of several reusable learning tools that began in one course but expanded (or will expand) to others.

Moodle Course Shell

When the NC State Online MBA Program was being developed with a set of new-to-online courses, we had an opportunity to create a consistent experience for the courses, both visually and pedagogically. Many of the professors in the Online MBA program had no prior experience with online courses. Program staff wanted to create links to program-level resources and keep these links similar across courses from a student perspective.

We created a Moodle course shell with instructional templates that have been successful in former courses. The shell can be imported into individual course spaces. The shell also includes links out to program-level resources and pre-defined blocks for instructor contact information and links to student group spaces. We also created an instructor manual on how to use the various components of the MBA Course Shell. This course shell is now used as the basis for course templates for Distance Education courses outside of the Online MBA program.

Virtual Viewer

In TMS 211: Introduction to Fiber Science, students must identify fiber types and fiber characteristics under various microscopic conditions (red plate, different mounting mediums, zoom levels, etc.) and use a micrometer in sample measurement and identification. Without access to a laboratory, Distance Education students did not have samples and a microscope available to them.

Our team built an interactive Web application called the Virtual Viewer that simulates many of the capabilities of a compound microscope with regard to viewing media that would traditionally be viewed through a microscope lens. We also developed many of the tools associated with a compound microscope. The Virtual Viewer allows students to view multiple images simultaneously or to see the same image under different conditions at the same time. Although this tool was originally developed to view microscopic images, it can be used for any application where the aim is to have multiple views available simultaneously and multiple pieces of information about the same item available for reference.

ABOVE: A student explores a microscopic image of cotton using the Virtual Viewer.
**Flashcard Study Tool**

In CH 221: Organic Chemistry, students are required to quickly identify molecular interactions and anticipate subsequent reactions. Flashcards were a common method for students to study this material and the instructor wanted to give her online students a useful learning activity. Our team reviewed existing flashcard tools and found that none met the needs of the instructor. Rather than modify an existing solution to fit the needs of CH 221, we developed the Flashcard Study Tool to scale and serve any number of instructors in putting flashcards online.

This system allows instructors to author sets of cards online for students, and to supplement text with images, sounds and video. The flashcards can be “chained together” so that complex concepts across multiple cards will appear in a predefined sequence. Specifically, this allowed us to put multi-step reactions into sequences of flashcards and more generally, it allows students to build on their learning and help solidify concepts. There are currently more than 15 courses using the Flashcard Study Tool. These course’s card sets are available to all NC State students to use. The Flashcard Study Tool will soon be available on mobile devices and is currently on large-format devices in D.H. Hill Library, which are suitable for group study sessions.

**Learning Path**

In ENT 401: Honey Bee Biology and Management, students learn to manage a honey bee hive through the seasons, including construction and maintenance of the hive and the various processes that arise during the annual cycle. After considering the number of courses that teach about cycles of various kinds, we built a tool called Learning Path, which allows faculty to teach cyclical content.

Learning Path allows for images and videos as well as interactive and evaluative segments that track a student’s progress and (optionally) score. Learning Path has been in use in ENT 401 since spring 2011. It is in early development for ANS 230 to help students understand the process of animal digestion, and is a potential solution for teaching about the cycles of medical product development, research design and implementation.

![Honey Bee Management](image1)

**Honey Bee Management**

Welcome to Honey Bee Management! You are cast in the role of a beekeeping apprentice, where you will learn to build, establish, and manage a honey bee colony. To get started, click on a section of the yearly cycle or jump to a specific module.

1. Getting Started
   - Starting a Colony
   - Establishment
   - Management Techniques
   - Problems and Solutions
   - Harvest

**Langstroth Bee Hive (1)**

Identify the following and their function:
- Brood box
- Super

![Langstroth Bee Hive](image2)

![Learning Path](image3)

LEFT: Learning Path is an interactive application developed to guide students through the process of honey bee management.

RIGHT: In this video within the Learning Path tool, Dr. David Tarpy shows students how to constructing a Langstroth Bee Hive.
When DELTA re-evaluated our goals in 2012 to align with the new NC State Strategic Plan, we identified a goal to “collaboratively develop and disseminate best practices for teaching and learning with technology.” This goal is one way in which we aim to support NC State’s goal to “enhance organizational excellence by creating a culture of constant improvement.” By meeting this goal we impact our community locally, nationally and internationally.

DELTA staff members disseminate best practices in our field by delivering conference presentations, consulting with other universities, participating in the UNC System and other North Carolina committees, reaching out to local military partners and collaborating with external partners. The various ways in which we impact our community demonstrate that DELTA is locally engaged and globally connected.

**Contributing to Innovation**

DELTA staff members actively contribute to scholarship, innovation and knowledge of learning technologies and distance education trends, strategies and leadership. Through conference presentations, we share our discoveries and contribute to the ever-improving quality of online and blended education. A few of the presentations from FY 2011-12 are described below.

“Putting Science Labs Online for Distance Education: Five Case Studies”  
Instructional designers Lee Ann Gillen and Cleo Magnuson presented their experiences with putting science labs online at the 2012 Lilly Conference on College and University Teaching. Using several case-based examples from online labs taught at NC State, they demonstrated solutions for these diverse disciplines, including reusable tools, to answer questions about strategies and feasibility for putting labs online.

“Solving the Mobile Mystery: When and How”  
Amanda Robertson and Ruth Smith from DELTA’s Instructional Innovation Services team and Shawn Dunning from the College of Textiles presented on lessons learned while creating mobile solutions at EDUCAUSE Learning Initiative. They discussed when it makes sense to develop a solution for mobile delivery, which platform (mobile web or app) to use, and when to make a mobile solution reusable. The team also shared their experiences and lessons learned in developing three reusable mobile learning tools: an interactive 3D microscope tool developed in Unity3D, a full-featured flashcard app also available on multi-touch tables, and a mobile video website that encourages student exploration inside and outside the classroom.

“Distance Education Virtual Orientation: Preparing Students for Success”  
Melissa Williford and Sharon Broere from DELTA’s Distance and Distributed Education unit presented NC State’s Distance Education Virtual Orientation at the Instructional Technology Council: eLearning 2012. The orientation was developed as a method of introducing Distance Education students to the NC State online course environment. They discussed the development and implementation of the orientation and encouraged the audience to initiate research into implementing their own online orientation.
Other presentations of note from DELTA staff include the following:

- 27th Annual Conference on Distance Teaching & Learning
  “Integration of Google Apps and Maps in Interactive Learning”
- INTED2012 International Association of Technology, Education and Development
  “Challenges and Solutions for Online/Virtual Science Labs”
  “10 Ways to Enhance the Undergraduate Learning Experience in an Online Course”
- IADIS International Conference on Mobile Learning
  “A Pedagogical Approach to Mobile Learning Solutions”
- International Internet Forum
  “Innovations in Education”

Sharing Best Practices in Distance Education Administration

DELTA and NC State have gained an international reputation for successfully administering and delivering online education. Each year universities request our consultation as they prepare to launch or improve their own online education programs. Because DELTA has a unique model of combining administration, learning technologies infrastructure and pedagogical support under one unit, universities turn to us for best practices. This year we met with the following universities to discuss strategic planning and best practices for distance education:

- University of Kentucky College of Arts and Sciences
- Ural State University, Russia
- Virginia State University
- Campbell University

Serving North Carolina

With our ultimate mission to serve the citizens of North Carolina, DELTA represented NC State on a number of committees focused on advancing the quality of education in North Carolina. Some key committees include the following:

- UNC System Strategic Initiative Representation
- UNC System Community Engagement Metrics Task Force
- UNC System Language Assembly Portal Task Force
- NC eLearning Commission

Reaching out to Military Partners

Because distance education delivery is a natural fit for members of the military looking to advance their education, DELTA has developed and nurtured strong military partnerships. This year we continued to reach out to our neighbors at Ft. Bragg and Camp Lejeune through student recruitment fairs and program and career advising. Through a partnership with the Department of Defense and the Pentagon, DELTA explored the development of non-credit online programs for soldiers at Ft. Bragg and Camp Lejeune. We participated in the BRAC Regional Task Force, which aimed to coordinate planning and identify community impacts across 11 counties surrounding Ft. Bragg to support the U.S. Forces Command and the U.S. Army Reserve Command move to Ft. Bragg.

In a public/private partnership with Triangle-based Futures Inc., we collaborated with a White House Task Force that sought to outline education, career and entrepreneurial opportunities for soldiers exiting the military. DELTA continued to represent NC State on the UNC System Military Affairs Council, which coordinates efforts across the UNC System to support military personnel and their educational needs and interests.
Seven faculty members across five projects were recognized at this year’s Gertrude Cox Awards for Innovative Excellence in Teaching and Learning with Technology, sponsored by the Office of Faculty Development. Six of the faculty had been recipients of IDEA Grants, which provide faculty with funds to support the planning, design and development of high-quality distance education courses, programs and resources. Also recognized at the awards ceremony were 18 full-time or part-time DELTA staff from the Instructional Innovation Services (IIS) team who were involved in producing the award-winning courses.

These courses were nominated by NC State staff and faculty for their creative contributions to teaching, learning, and technology at the university during the 2010-2011 academic year. An anonymous group of judges selected the winners.

**Honey Bee Biology and Management**

ENT 401: Honey Bee Biology and Management is an upper-level course focusing on the biology of honey bees and provides an introduction to beekeeping. Students focus on honey bee life history, development and behavior to understand how colonies function. David Tarpy (College of Agriculture and Life Sciences) worked with Cleo Magnuson, Mike Cuales, David Tredwell, several students from IIS, and John Gordon from DELTA Video Communication Services to create a Distance Education version of ENT 401.

Inherent to the structure of ENT 401 is the Learning Path Interactive Tool (see page 21), developed for this course to give students an in-hive, hands-on perspective through various demonstration videos, self-evaluation tools and interactive exercises. With this tool, the student experience is nonlinear and interactive, as students participate at their own pace, enter the interactive tool at various points, and incorporate content gleaned from other course lectures and materials.

**Introduction to Fiber Sciences**

Shawn Dunning and Jon Rust (College of Textiles) worked with Ruth Smith, Amanda Robertson, Ben Huckaby, David Tredwell and several students from IIS on a Distance Education offering of TMS 211: Introduction to Fiber Sciences. Course material is delivered in customized Moodle Books that feature Articulate interactions, instructional graphics, custom graphics, Livescribe recordings and animations. The course also integrates a Moodle glossary allowing words in content to auto-link to their definitions.
A key component of the course is the Virtual Viewer (see page 20), which shows students what they would see through a compound microscope while providing side-by-side slide comparisons. The Virtual Viewer gives students opportunities to simulate working with fibers under a microscope in a virtual environment. The team also developed the MicroExplorer 3D, an interactive animation, to explain and identify the parts of a compound microscope and how to use it. The website and the mobile application feature a 3D model of a compound microscope with photographs, video and textual descriptions for each part.

The class also incorporates self-assessments, case studies, quizzes and instructional videos. By using media to better demonstrate detailed processes and successfully combining a lecture and a lab into a single Distance Education course, Dunning and Rust have created a highly interactive and engaging course.

**Women and Gender in Science and Technology**

In WGS 210: Women and Gender in Science and Technology, students explore how the social, economic and institutional practices of scientific and technological research are shaped by the presence and absence of women. Deena Murphy (College of Humanities and Social Sciences) collaborated with Ruth Smith and Ben Huckaby from IIS and John Gordon from DELTA Video Communication Services in putting the course online for Distance Education. This interdisciplinary course is an introduction to the reciprocal influence of scientific and technological research on contemporary understandings of women and men.

WGS 210 incorporates interactive lectures and readings, but the real emphasis is placed on student participation. To facilitate this, the course uses a variety of discussion tools including: Moodle forums, VoiceThread and Elluminate (now Blackboard Collaborate). Students not only participate in these discussions via text, audio, or webcam, but also work in teams and lead a unit discussion themselves. Deena Murphy and Ruth Smith were nominated for a World Technology Award in 2011 for their work on this course.

**Nutrition of Domestic Animals**

Joan Eisemann and Sung Woo Kim (College of Agriculture and Life Sciences) worked with Cathi Phillips, Amanda Robertson and several student workers from IIS on a Distance Education offering of ANS 230: Nutrition of Domestic Animals. Eisemann and Kim developed course content independently and reviewed each other’s writing to ensure all essential content was included in each topic. Collaborating with instructional designer Cathi Phillips, the final versions were incorporated into customized Moodle Books. Each book presents topic chapters including: introduction, learning objectives, keywords, content, activities and summary.

ANS 230 is rich with activities, such as PowerPoint presentations, related website interactions, additional readings and self-quizzes. This course also implements fascinating animations of challenging concepts like protein digestion and synthesis, which shows a keen awareness of which topics are most challenging for students. The combination and breadth of learning materials and activities helps students gain a firm grasp of domestic animal nutrition and a realistic assessment of their own learning. (See page 18 for more about ANS 230: Nutrition of Domestic Animals).
WE SEEK TO IMPROVE THE QUALITY
HARNESSING TECHNOLOGY TO PROVIDE
ALL LEARNERS. IN THIS WAY WE HOPE
CHALLENGES OF A CHANGING SOCIETY.