

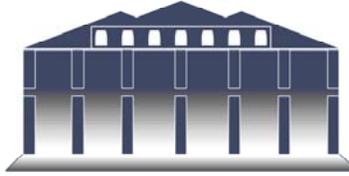
**University Distance Courses  
Cost More to Develop Overall but the  
Same to Deliver as On-Campus Courses**



**Final Report to the Joint Legislative  
Program Evaluation Oversight Committee**

**Report Number 2010-03**

**April 28, 2010**



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*John W. Turcotte*  
Director

April 28, 2010

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Representative Nelson Cole, Co-Chair, Joint Legislative Program Evaluation Oversight Committee

Senator Daniel G. Clodfelter, Co-Chair, Joint Legislative Program Evaluation Oversight Committee

Senator Fletcher L. Hartsell, Jr., Co-Chair, Joint Legislative Program Evaluation Oversight Committee

North Carolina General Assembly

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Honorable Co-Chairs:

Session Law 2008-107, Section 9.10(a) instructed the Program Evaluation Division to review the start-up and ongoing costs of distance education versus on-campus instruction throughout the University of North Carolina (UNC) System. This report focuses on a comparison of costs associated with the development and delivery of distance education courses versus those taught on-campus.

I am pleased to report that UNC General Administration and the universities cooperated with us and were at all times courteous to our evaluators during the evaluation.

Per Session Law 2008-107, Section 9.10(a), this report also was submitted to the Joint Legislative Education Oversight Committee and the Fiscal Research Division.

Sincerely,

A handwritten signature in black ink, appearing to read "John W. Turcotte".

John W. Turcotte  
Director





# PROGRAM EVALUATION DIVISION

## NORTH CAROLINA GENERAL ASSEMBLY

April 2010

Report No. 2010-03

# University Distance Courses Cost More to Develop Overall but the Same to Deliver as On-Campus Courses

## Summary

**Evaluation purpose.** The North Carolina General Assembly directed the Program Evaluation Division to compare the startup and ongoing costs of distance education versus on-campus instruction throughout the University of North Carolina (UNC) System. This evaluation provides a history of distance education, a description of how UNC delivers distance education, and a comparison of costs associated with the development and delivery of distance education courses versus on-campus courses.

**Compared to on-campus courses, distance education courses cost more overall to develop but cost about the same to deliver.** The increased cost is largely due to staff support needed to create distance courses or for converting on-campus course content for distance delivery. On average, the cost to deliver distance education courses does not differ significantly from the cost of delivering on-campus courses.

**Distance education increases access to education.** Distance education is not new; however, the method of delivery for course instruction has evolved extensively with advances in technology. The flexibility of participating in courses at off-campus locations or through online courses provides a unique opportunity for the workforce. Faculty and staff design distance programs to help students retool with new skills or sharpen skills to keep pace with dynamic workplace demands.

**Technology has changed delivery of instruction in every setting.** Many of the UNC campuses asserted there was no clear distinction between distance education and on-campus instruction in terms of instructional technology. The level of commitment by campus leadership is an important component because it affects how campuses deliver and dedicate resources to distance education.

**Wide variation in distance education capabilities among the UNC campuses creates inefficiencies across the UNC System.** UNC General Administration is in a position to foster collaboration between campuses in the system that have more advanced technology resources dedicated to distance education and campuses that are impeded by limited staff and technology. This collaboration would achieve a more responsive, comprehensive, and unified distance education system.

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## Scope

The North Carolina General Assembly instructed the Program Evaluation Division to review the start-up and ongoing costs of distance education versus on-campus instruction throughout the University of North Carolina (UNC) System.<sup>1</sup> This report focuses on a comparison of costs associated with the development and delivery of distance education courses versus those taught on-campus. The project considered all modes of delivery for distance education and associated costs for both types of courses on 15 of the 16 UNC campuses:<sup>2</sup>

- Appalachian State University,
- East Carolina University,
- Elizabeth City State University,
- Fayetteville State University,
- North Carolina Agricultural & Technical State University,
- North Carolina Central University,
- North Carolina State University,
- UNC-Asheville,
- UNC-Chapel Hill,
- UNC-Charlotte,
- UNC-Greensboro,
- UNC-Pembroke,
- UNC-Wilmington,
- Western Carolina University, and
- Winston-Salem State University.

The Program Evaluation Division analyzed data from

- administrative queries completed by each of the 15 campuses,
- site visits to 9 campuses,
- 2007-08 course data from the UNC System, and
- cost data on development and delivery of a sample of courses collected from each campus.

Data collected is presented in this report to provide

- a brief history of distance education,
- development and delivery cost data from a sample of distance education and on-campus courses,
- an explanation of how distance education has been implemented on campuses in the UNC System, and
- suggestions for improvements for distance education in the UNC System.

This review did not evaluate the quality of education or educational outcomes of the different models for distance education versus on-campus instruction. Also, the issue of course duplication was excluded based on an Office of State Budget and Management report finding a low duplication rate.<sup>3</sup>

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<sup>1</sup> 2008 NC Sess. Laws, 2008-107, Section 9.10(a).

<sup>2</sup> The University of North Carolina of the Arts was excluded from the study because it does not offer distance courses.

<sup>3</sup> Office of State Budget and Management. (2006, April). *North Carolina University System: Study of Distance Education*. Retrieved from [http://www.osbm.state.nc.us/files/pdf\\_files/5-1-2006FinalDEReport.pdf](http://www.osbm.state.nc.us/files/pdf_files/5-1-2006FinalDEReport.pdf).

## Questions and Answers

### 1. What is distance education?

**The basic premise of providing distance education is to increase access to education.** The existence of distance education is not new; however, the method of delivery for course instruction has changed quite a bit over time with advances in technology. There is no single, agreed upon definition of distance education due to the variance of what it includes at different universities. The University of North Carolina (UNC) defines 'distance education' as:

A coherent course of study in which the student is at a distance from the campus and the instructor may or may not be in the same place as the student; in addition to face-to-face instruction at a distance, instruction may be delivered synchronously or asynchronously through electronic means (e.g., online courses, web-enhanced courses, two-way interactive video, etc.).<sup>4</sup>

Distance education technology has often been described as emerging over time in terms of "generations of technologies." The first generation emerged with the modernization of print media. Early distance education relied on printed material and was characterized by limited interaction between students and instructors. Distance education delivered exclusively in print through correspondence courses relied heavily on the postal service and began in the late 1800s and early 1900s.

Advances in technological platforms brought cable and satellite television into use as a delivery method for distance education in the late 1970s and early 1980s. The transition into the second generation of technology, commonly referred to as the multimedia generation, is characterized by a melding of multiple media formats, such as integrating print with audio and video broadcasts.

The third generation is based on technologically enabled interaction between students and instructors facilitated through video conferencing or web-based applications. These methods allow instruction to occur through highly interactive, two-way, one-to-one, one-to-many, and many-to-many communication techniques that enable the existence of virtual classrooms. Virtual classrooms provide a venue for a community of learners to come together for interactive education without being limited to a physical classroom setting.

**There has been a gradual integration of distance education into the instructional fabric of the UNC System.** This integration is exemplified by how the funding of distance education courses has evolved. When distance education began, it was funded under the university extension program with most courses delivered at an off-campus location, and it was receipt-based. Distance education courses did not receive funding from the North Carolina General Assembly until 1998, when state appropriations were provided for instructional and support activities for distance education courses as part of the base funds for each campus. Increases in the number of semester credit hours was funded using essentially the same enrollment

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<sup>4</sup> Board of Governors, The University of North Carolina. (2004, December). *RULES AND STANDARDS for Licensing Nonpublic Institutions to Conduct Post-Secondary Degree Activity in North Carolina.*

growth formula as regular term courses beginning in the 1999-2001 biennium.<sup>5</sup> Although the funding formula is used to request money from the General Assembly and allocate state funds to each institution, institutions retain control over how these funds are distributed on their campuses. This institutional control has influenced the prevalence of distance education across the 15 institutions in the UNC System. This flexibility allows institutions to concentrate program growth to meet specific community or regional needs.

In 2001, PricewaterhouseCoopers worked with UNC General Administration to complete *The University of North Carolina (UNC) E-Learning Readiness Assessment (eLRA) Project*.<sup>6</sup> The project assessed the readiness of the UNC System to coordinate e-learning across campuses. The report suggested that distance learning would enable the university system to expand access to more North Carolinians despite projected constraints on capacity. It also recommended that distance education focus on three learner segments: adult degree completion students, professionals, and corporate learners. The proposed expansion of access would offer the citizens of North Carolina quality, affordable educational opportunities and ensure equal, affordable access to higher education for working, place-bound adults.

In 2007, the UNC Tomorrow Initiative Commission advised the Board of Governors and UNC President on how to respond efficiently and effectively to the needs and challenges of the state.<sup>7</sup> The commission convened groups across the state for input on how best to prioritize resource allocation of current and future programs, plans, and missions of the UNC institutions. Commission Finding 4.2 stated, "UNC should increase access to higher education for all North Carolina citizens, particularly for underserved regions, underrepresented populations, and non-traditional students." Speakers at UNC Tomorrow forums and survey respondents ranked increasing distance education and online course offerings as the best way UNC could have the greatest impact on the community. A suggested strategy for increasing access to educational programs at UNC was to broaden the delivery of courses and degree programs through additional online and distance education programs and other flexible options that would meet the needs of working adults and other non-traditional students.

**The use of technology to enhance the presentation of information in higher education is essential to accommodate a changing student body.**

One UNC faculty member said, "Today's student learns differently and has a different life than 10 years ago." Traditional students in college now have grown up with technology and they expect it in their education. Lifestyles of students are changing as well. Faculty report more students ages 18-22 are working and need the flexibility that different methods of delivery allow.

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<sup>5</sup> The formula for distance education does not include undergraduate cost factors, and distance education tuition is charged on a different basis than regular term.

<sup>6</sup> PricewaterhouseCoopers. (2001, October). *The University of North Carolina (UNC) E-Learning Readiness (eLRA) Project: Final Report*. Retrieved from [http://intranet.northcarolina.edu/docs/ir/reports/UNC\\_eLRA\\_FinalReport\\_101101.pdf](http://intranet.northcarolina.edu/docs/ir/reports/UNC_eLRA_FinalReport_101101.pdf).

<sup>7</sup> University of North Carolina Tomorrow. (2007, December). *University of North Carolina Tomorrow Commission: Final Report*. Retrieved from [http://www.northcarolina.edu/nctomorrow/reports/commission/Final\\_Report.pdf](http://www.northcarolina.edu/nctomorrow/reports/commission/Final_Report.pdf).

The flexibility of participating in courses at off-campus locations or through online courses provides a unique opportunity for non-traditional students and individuals in the workforce to take courses. Many courses and programs are designed to retool students with new skills or sharpen existing skills to keep pace with a dynamic professional workplace. In addition, non-traditional students report they must keep up with the dynamic changes in technology in today's workplace. When the Program Evaluation Division observed a web-based class at a UNC campus, one master's student said she chose the distance program because it would force her to learn the technology at the same time she was learning the course material.

The demands on working students mean that distance education is often the only way they are able to continue their education. Many students reported distance education allowed them to continue working and taking care of other responsibilities in their lives while attending classes. During observation of a web-video course at one campus, a student's children were visible in the background of the video as their mother was at the kitchen table in class. Another distance education student travels on his job and reported distance education was the only option that worked for him. Also, many UNC campuses provide teachers a means to further their education via distance delivery either online or at off-campus locations, such as the programs offered in Hickory by Appalachian State University. Often, the educational costs for students participating in distance education are lower than for on-campus students because fees are reduced or eliminated, travel costs are less, and there may be fewer indirect costs such as child care or taking time off work to attend classes.

Clearly, distance education serves an important purpose to increase access to higher education and has shown steady growth overall. In addition, specific regional needs are being served by distance education. For example, at several UNC campuses there is a heavy concentration of programs serving the military community either with off-site or online classes. Distance courses allow military personnel to continue their education at a different pace and throughout deployments. UNC-Wilmington addressed regional needs by partnering with pharmaceutical companies in the area to develop a master's program in chemistry that allows employees to acquire advanced degrees without coming to campus.

**Distance education is not possible for all courses or programs.** Although many nursing courses are provided through an electronic-based method of delivery, clinical courses still require in-person instruction. The determination of appropriateness of method of delivery for distance courses also varies. For example, to best meet regional needs, advanced education programs are offered online at one campus but face-to-face at an off-site location by another campus.

Further, some students are not well suited for distance courses. In particular, faculty interviewed were not in favor of distance courses for most freshmen and sophomores because of their lack of maturity and untested self-discipline. They also believed the careful reading and planning required for distance courses challenges some undergraduates.

**Technology has changed the way education is delivered in every setting.** Many of the UNC campuses reported there was no clear distinction

between distance education and on-campus courses in terms of the technology used for instruction. Campus information technology groups used the same technology infrastructure—wireless networks, servers, and telecommunications—to support the day-to-day activity of on-campus students, distance education students, faculty, and staff. Faculty use the same software to create learning environments for distance or on-campus courses.

A recent international survey of individuals from higher education and the corporate environment found 63% believe technological innovation has had and will continue to have a major influence on teaching methodologies over the next five years.<sup>8</sup> Faculty on UNC campuses echoed this sentiment and further suggested technology has improved and enabled more versatility in how face-to-face courses are delivered by leveraging all types of technology to facilitate instruction.

**Teaching has evolved with the use of technology, and technology has increased the overall quality of teaching.** Faculty in focus groups suggested that teaching online has improved how faculty teach in the classroom. According to faculty, distance courses require more upfront planning for course preparation and development of course material that is clear and straightforward. Many faculty use the same materials developed for their distance course in their on-campus sections because it makes for a richer learning experience and provides more of a real-world feel. Also, faculty reported they are able to get to know their distance students better than their on-campus students because mandatory posting requirements for online courses increase student-instructor interaction. Whereas students may sit passively in a classroom, they must interact in distance courses because the technology utilized for delivery measures their participation.

**Distance education utilizes multiple methods of delivery.** Face-to-face course delivery for distance education takes place in a classroom off-site with the instructor. These courses conduct regularly scheduled class session to discuss and review course material. Off-site face-to-face distance courses are held at various locations throughout the state such as community colleges, military or government facilities, schools, and hospitals.

Electronic-based delivery methods rely heavily on the use of computers and network technology by both students and instructors and can be broken into two types of delivery: *asynchronous* and *synchronous*.

- **Asynchronous** delivery provides course materials that are available for students to access when they choose. Course material is presented via video, computer, or other means. This method of delivery gives students the flexibility to complete course material at their pace, without the constraints of a predetermined meeting time.
- **Synchronous** delivery means the instructor and students interact in “real time” through two-way video conferencing, audio or desktop conferencing, internet chat, or virtual world simulation.

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<sup>8</sup> The Economist Intelligence Unit. (2008). *The Future of Higher Education: How Technology Will Shape Learning*. Retrieved from [http://www.nmc.org/pdf/Future-of-Higher-Ed-\(NMC\).pdf](http://www.nmc.org/pdf/Future-of-Higher-Ed-(NMC).pdf).

Hybrid courses blend delivery methods to utilize aspects of traditional face-to-face delivery with electronic-based delivery methods. In hybrid settings students and instructors still meet face-to-face at scheduled times, but this face-to-face interaction occurs less frequently. A hybrid delivery method provides an effective strategy for dealing with growing space constraints on campus.

## 2. How does the cost of distance education courses compare to the cost of on-campus courses?

Compared to on-campus courses, distance education courses cost more overall to develop but cost the same to deliver. Development of distance education courses require additional assistance from staff that have expertise with technological tools and platforms used to create online classes, which is in addition to the cost of content development by faculty. Costs for distance education instruction do not differ from on-campus instruction because faculty costs are the largest factor, and in many cases the same faculty, or a member of the faculty with a similar salary, teach each type of course.

**Developing distance education courses costs more overall than developing on-campus courses.** The Program Evaluation Division collected cost information for the development of distance education and on-campus courses from each University of North Carolina (UNC) campus. Campuses identified 1,979 new courses developed since 2004. The Program Evaluation Division selected a sample of 102 courses developed between 2007 and 2009 (51 on-campus and 51 distance courses) and received cost information for 97 courses (47 on-campus and 50 distance courses) of the courses sampled.<sup>9</sup> Several outliers were excluded from analyses due to a wide range in the cost estimates for development of courses (\$76 to \$84,290 per course).<sup>10</sup> Analyses were completed for 92 courses, 46 on-campus and 46 distance courses.

Most of the distance education courses in the development sample (83%) already existed as on-campus courses, whereas the on-campus courses were new and involved course content development. On average, the reported development costs for distance education courses and on-campus courses were about the same. However, because course content costs had been a previous investment for most distance courses, these previous costs must be considered in addition to the reported distance development costs.

The reported costs of developing distance education courses are largely for converting existing course content for distance delivery; 88% of distance education courses in the sample were developed for either asynchronous or synchronous web instruction. This result is consistent with a previous study conducted by the Office of State Budget and Management

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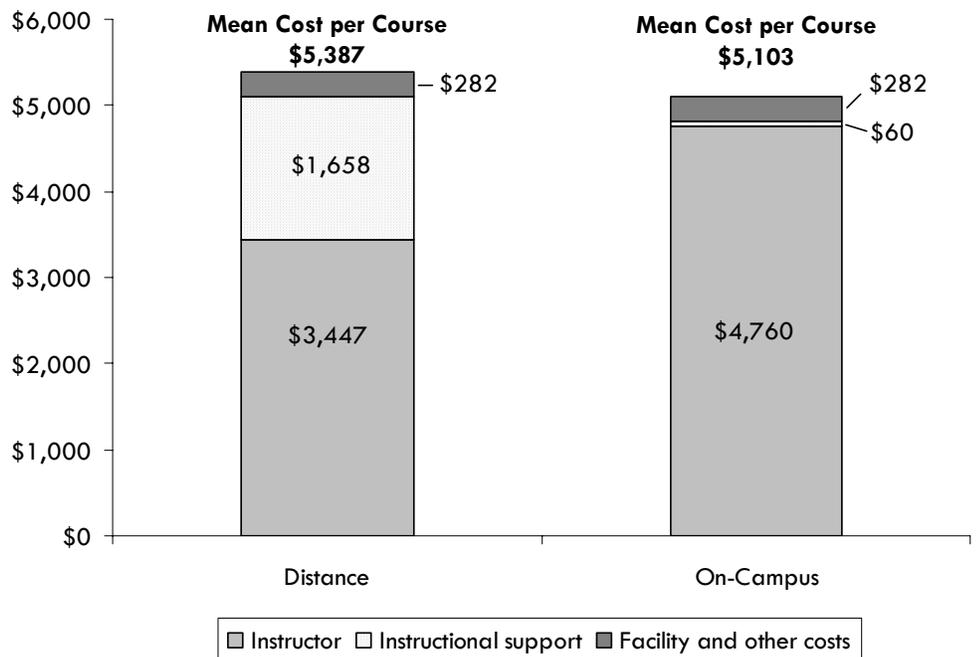
<sup>9</sup> This sample was larger than previous studies but limited due to workload concerns expressed by UNC General Administration. See Appendix A for a detailed description of the sampling methodology.

<sup>10</sup> Five observations that were more than two standard deviations from the mean were identified as outliers and excluded from analyses.

that found online courses cost substantially more to develop than on-campus courses.<sup>11</sup>

**Developing distance education courses requires more infrastructure and staff support.** About 93% of development costs for on-campus courses support faculty salaries to create the course compared to 64% of the costs of developing distance education courses. Exhibit 1 shows the actual amount paid to faculty to develop on-campus courses was \$1,313 higher than distance courses because the on-campus courses were new and involved course content development, whereas most distance courses were conversions of existing course materials. Data was not collected on the original cost to develop the original on-campus courses being converted to distance delivery. However, faculty were more likely to receive stipends for developing or converting distance education courses (50% for distance education courses versus 15% for on-campus courses), which suggests distance course development was in addition to other faculty responsibilities. In addition, distance education courses incurred significantly higher expenses for staff from other campus offices (distance education, continuing education, faculty center, and other staff or consultants) that assist faculty in developing courses (\$1,658 for distance education courses versus \$60 for on-campus courses).<sup>12</sup> Previous studies on the cost of distance education courses conducted by the UNC General Administration and the Office of State Budget and Management have found the technical expertise, training, hardware, and software required to adapt courses for web-delivery increased development costs of distance education courses.

**Exhibit 1**  
Instructional and Technology Staff Account for Significantly Greater Portion of the Cost for Developing Distance Education Courses, Fiscal Year 2007-08



Source: Program Evaluation Division based on course development cost provided by UNC campuses for courses sampled.

<sup>11</sup> Office of State Budget and Management. (2006, April). *North Carolina University System: Study of Distance Education*. Retrieved from [http://www.osbm.state.nc.us/files/pdf\\_files/5-1-2006FinalDEReport.pdf](http://www.osbm.state.nc.us/files/pdf_files/5-1-2006FinalDEReport.pdf).

<sup>12</sup> This difference was statistically significant at  $p < .05$ .

At some campuses, the development of online classes involved up to four different departments:

- faculty support from the academic unit developing the course;
- instructional design support from faculty center, distance, and/or continuing education staff to assist faculty in curriculum design to achieve intended student learning outcomes in an online environment;
- hardware/software support from centralized or department-specific information technology staff to provide the appropriate technology for the course; and
- instructional assistance from centralized or department-specific staff to help faculty transfer the curriculum to the online environment.

For example, at East Carolina University the development of both the content and the pedagogical methods used in every distance education course relies on a team of cross-campus professionals that include Academic Outreach personnel, Instructional Technology consultants in the colleges, library personnel, the Center for Faculty Excellence, and in some cases teaching assistants.

Other campuses take a primarily centralized approach to online course development. At UNC-Greensboro some departments create online courses, but their Division of Continual Learning has a staff dedicated to work with faculty members to convert two degree programs per year for online delivery. Online development teams are comprised of an instructional designer, graphic designer, coder, audio/video specialist, and editor that work with faculty to storyboard the course, design interactive learning objects, write the code, shoot and edit video, record and edit audio, create animation, and integrate all components into a seamless course. This approach potentially increases the cost and decreases the flexibility of faculty to make changes except during updates, which are scheduled for every three years. In the present sample, 4 of the 10 most expensive courses to develop were from UNC-Greensboro, the most expensive of which was a 100-level Political Issues distance course that cost \$84,290 to develop. This cost was for video production of a web-based asynchronous course with embedded video and interactive learning objects.<sup>13</sup>

As part of course development, some UNC institutions conduct a quality assurance review of distance education courses before the course is approved for instruction. For example, at Winston-Salem State University the content of a newly developed online course is looked at three times: first by the academic unit, then by the campus's instructional support units, and finally by content and online teaching experts that evaluate the quality of the design and content of the course. On-campus courses at this institution do not undergo the same type of rigorous review. The quality review is performed to ensure online and off-campus courses have the same student learning objectives as their on-campus counterparts to maintain accreditation for degree and certification programs at the university.

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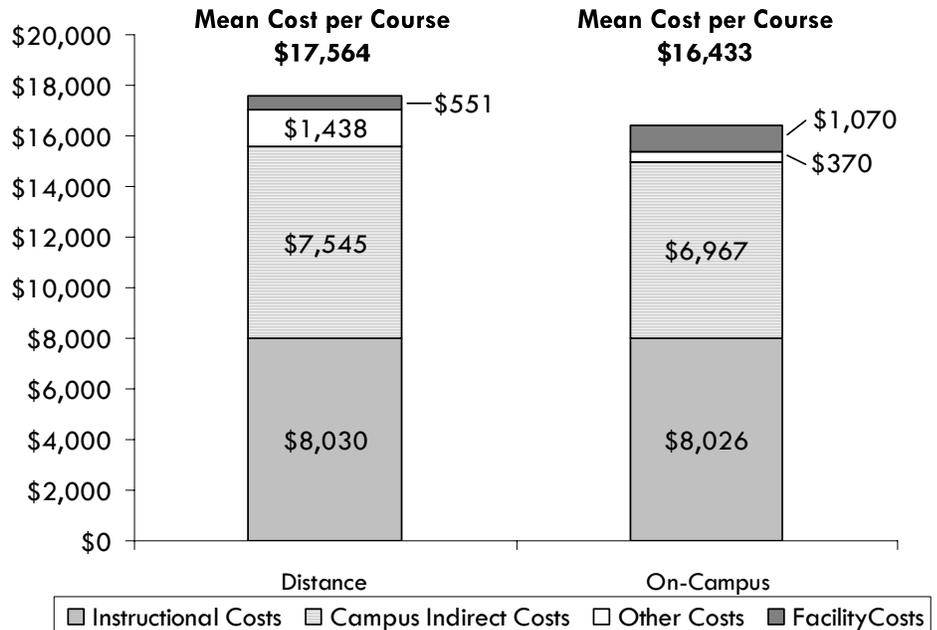
<sup>13</sup> This course was identified as an outlier and was one of five removed from analyses.

**There were no cost differences in delivering distance education versus on-campus courses.** To determine delivery costs, the Program Evaluation Division selected a sample from all courses taught in the 2007-08 academic year. Courses were classified as distance education courses if 100% of course enrollment was composed of off-campus students. Similarly, on-campus courses had 100% enrollment of on-campus students. For each campus, distance education courses were paired with on-campus courses with the same course number and discipline. The final sample consisted of 146 courses taught as both distance education and on-campus, and campuses provided cost information for 136 of these course pairs.

On average, the cost for delivering distance education courses did not differ significantly from the cost of delivering on-campus courses. This result is consistent with other research that examined cost differences between on-site versus off-site (primarily asynchronous web-based courses) courses.<sup>14</sup> Exhibit 2 shows the costs associated with the delivery of distance education and on-campus courses. Instructional cost (faculty salary or stipend, teaching assistants, and consultants) for distance education and on-campus courses were similar (\$8,030 versus \$8,026), and instructional costs made up almost half of the costs associated with delivery (46% for distance education and 49% for on-campus courses). During campus site visits, many faculty reported teaching the same course via distance education and on-campus. For example, faculty at Appalachian State University are expected to teach on-campus and at one of the university's off-site community college locations.

**Exhibit 2**

Delivery Costs of Distance Education and On-Campus Courses Do Not Differ, Fiscal Year 2007-08



Source: Program Evaluation Division based on development costs provided by UNC campuses for courses sampled.

<sup>14</sup> Gieth, C. & Cometa, M. (March, 1999). Cost analysis results comparing distance learning and on-campus courses. Draft Chapter in *Flashlight Cost Analysis Handbook*.

On-campus and distance education courses differed in costs associated with facilities and other delivery costs. As expected, on-campus courses had higher facility costs than distance education courses (\$1,070 versus \$551). Though many distance education courses are delivered online, several campuses deliver distance education at off-site facilities located at community colleges and school districts throughout North Carolina. Distance education courses had other costs associated with delivery that on-campus courses did not incur—in particular, compensating faculty for travel when teaching off-site and special software or hardware needed for courses.

**A common misconception is that online courses are cheaper to deliver because they can accommodate a larger number of students than on-campus facilities permit.** However, campus interviews suggest delivering distance education may cost more because institutions maintain smaller class sizes in an effort to ensure quality of instruction. Program Evaluation Division analyses found the average class size for distance education courses was significantly smaller than the average class size for on-campus courses (18 students versus 23 students).<sup>15</sup> Furthermore, analyses found the average cost per student enrolled in distance education courses is slightly higher (\$2,163 per student versus \$1,535 for an on-campus course, or a 29% cost variance). This result is consistent with the 2006 study conducted by the Office of State Budget and Management, which found 29% cost variance in the per student cost for online and on-campus courses.

During campus visits, faculty mentioned several factors that limit the class size of distance courses. Faculty emphasized the need to maintain smaller class sizes for online courses due to the amount of work necessary to engage students in the online environment. Faculty often require students to post and respond to comments on discussion boards in order to mimic classroom participation. In addition, students in online classes expect feedback and responses to questions 24/7, whereas students in on-campus courses are accustomed to asking questions during class or faculty office hours. Teaching online courses is more time consuming for faculty; therefore, keeping class sizes small is important to ensuring education quality.

### 3. How is distance education being implemented across University of North Carolina campuses?

University of North Carolina (UNC) campuses have 2,257 authorized programs and 351 certificate programs listed in the Academic Program Inventory and Certificates Inventory. The Distance Education Program Inventory contains 543 authorized distance degree and certificate programs that include 170 online programs, 62 online certificates, 298 site-based programs, and 13 site-based certificates. Each campus has a coordinator who oversees distance education courses and in July 2007, UNC General Administration launched UNC Online (<http://online.northcarolina.edu>), a one-stop online portal for information on distance education courses and programs offered by all campuses in the UNC System. Enrollment in distance education courses has grown sharply from 6,929 enrolled in distance education courses delivered in Fiscal Year

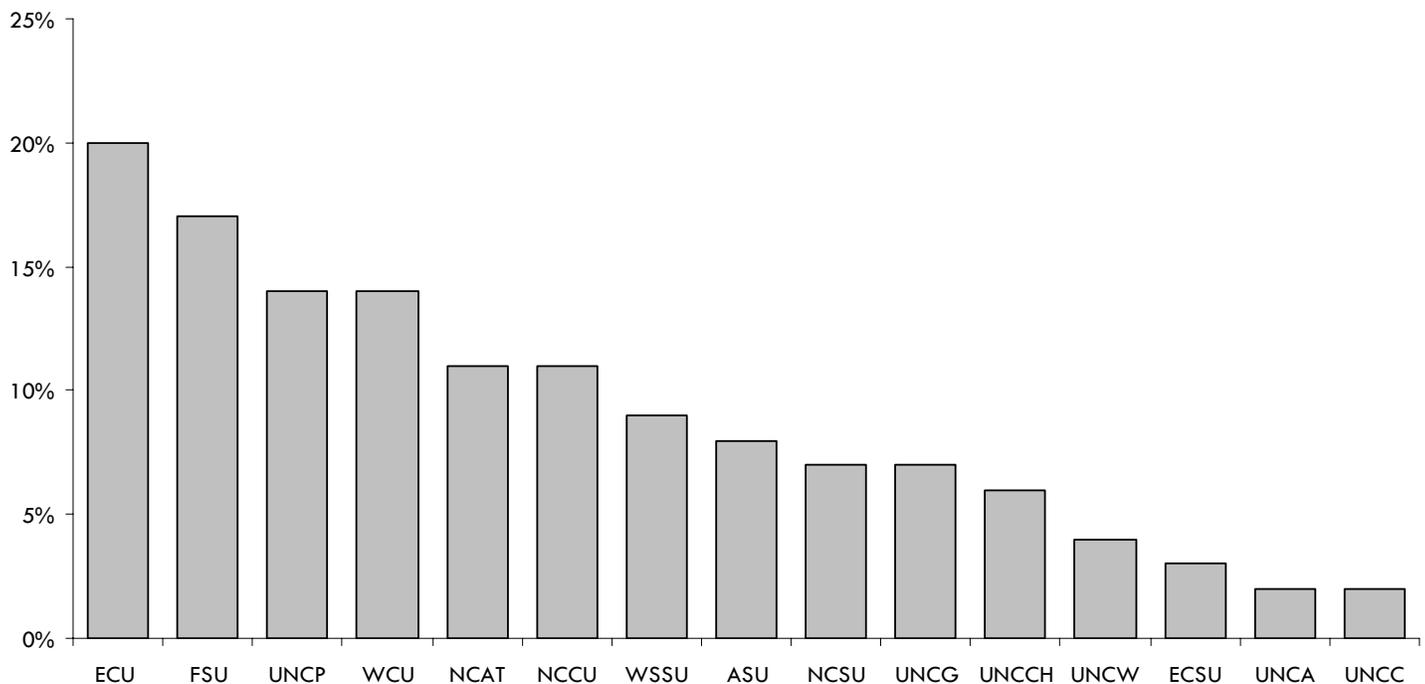
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<sup>15</sup> This difference was statistically significant at  $p < .01$ .

1998-99 to 55,822 students enrolled in distance education courses in Fiscal Year 2008-09.

**The UNC System course delivery methods for on-campus and distance methods are often indistinguishable.** The distinctions between distance education and on-campus courses in the UNC System relate largely to the way they are funded. It is important to emphasize that courses referred to as “on-campus” may be delivered through methods that include some of the same technologies used extensively in distance education. Although the majority of on-campus courses are delivered through a traditional face-to-face method, some are electronic-based. Similarly, many distance education courses are still delivered face-to-face at off-campus locations, not only through electronic-based delivery methods. As seen in Exhibit 3, the prevalence of distance education varies across the 15 campuses as do the methods of delivery.

**Exhibit 3: Percentage of Distance Education Courses at Each UNC Campus, Fiscal Year 2007-08**



Source: Program Evaluation Division based on data from UNC General Administration.

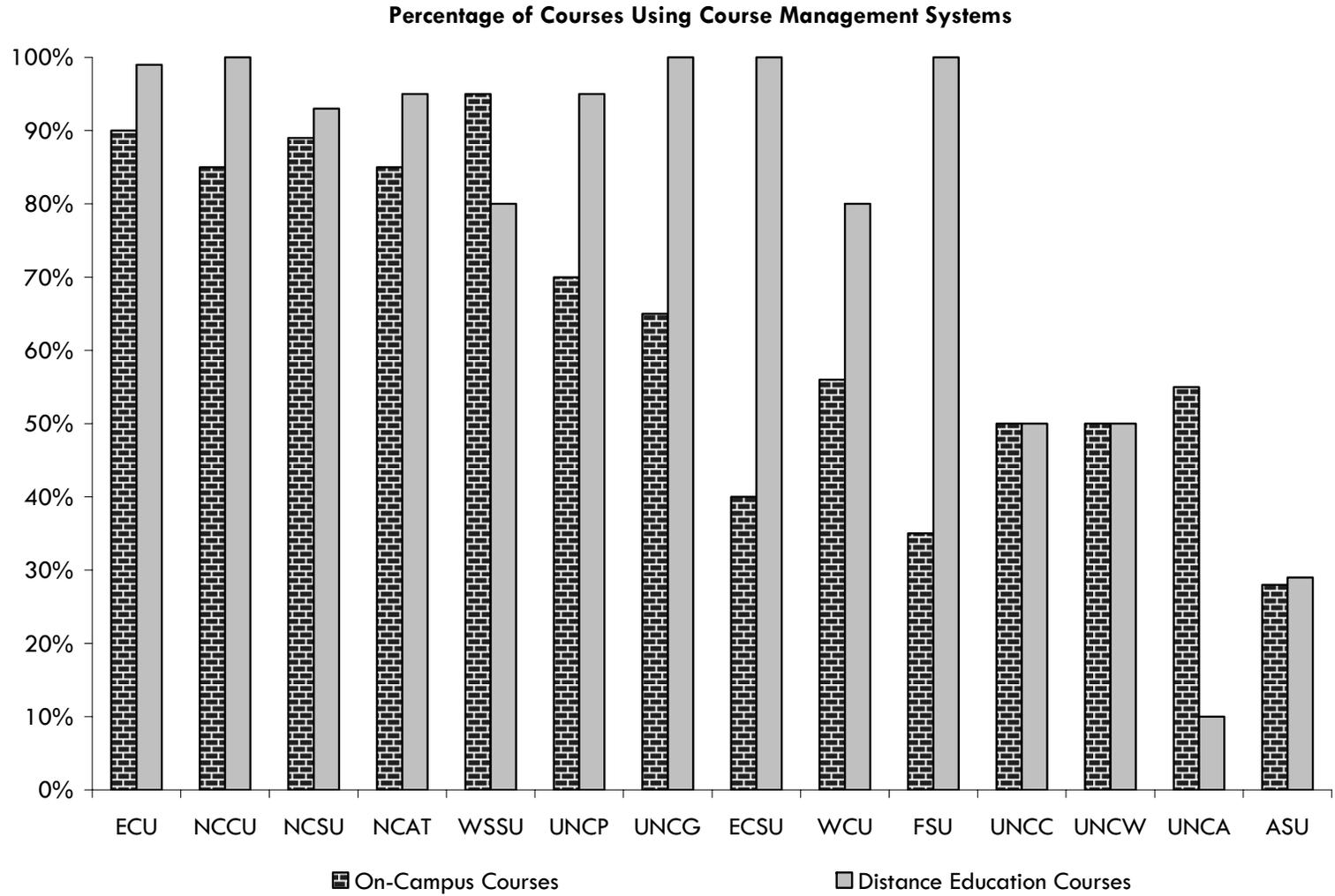
**UNC faculty use many different technology platforms.** Technology used for delivery among campuses varies for on-campus and distance education methods. For example, faculty use course management software, such as Blackboard or Moodle, at each campus to support classes regardless of type of delivery. On average, campuses reported 64% of on-campus courses use course management software compared to 77% of distance education courses. Exhibit 4 describes use of course management software technology by campus for on-campus and distance instruction. Although varying among campuses, it is clear that technology is important for any mode of course delivery.

## Exhibit 4: Use of Course Management Software on Each Campus to Facilitate On-Campus and Distance Instruction

**Course Management Systems (CMS):** CMS software assists students and instructors with course management and administration. CMS provide a venue to store, retrieve, and submit course work. These software platforms provide a forum for communication between students and instructors. CMS enable students to track individual progression throughout courses. For instructors, CMS provide a centralized online environment to manage assignments, exams, quizzes, and supplemental resources.

**Examples of CMS include**

- Moodle
- Blackboard
- Blackboard Vista



Note: UNC-Chapel Hill uses CMS software but is not in this exhibit because they did not provide an overall campus percentage of use.

Source: Program Evaluation Division based on data from UNC campuses.

The proliferation of other types of technology in the physical classroom and through distance delivery is reported by campuses to be less pervasive than the use of course management software. Multimedia and video material is utilized more often in distance than on-campus courses. This type of technology includes video or audio recorded lectures and other video material used in course delivery.

Software platforms that enable synchronous communication are the most advanced technology and are used more often for distance course delivery. This technology can be solely audio but usually includes a visual component. Some campuses use video conferencing for courses with set locations, such as community colleges, hosting an off-site class for two-way video transmission.

Most campuses also utilize web-based software to conduct synchronous courses, and the instructor and students have cameras to provide video of one another, which is controlled by the instructor. Another synchronous platform utilizes a virtual world setting. Second Life is an example of a virtual world in which instructors and students create avatars (virtual representations of themselves) that interact with one another. All of the courses have a three-dimensional setting in which students meet and learn. During site visits to UNC campuses, the Program Evaluation Division observed that virtual courses allowed students to experience a tidal wave, the Sistine Chapel in Rome, structures created by students in a design course, and a biology lab.

The availability of reliable Internet services is a major consideration for distance education course planning. Technology used for the delivery of courses has to be well suited for the population served. In some areas of North Carolina, there may not be stable high-speed Internet access readily available or there may be students without access to computers. Lack of access to broadband Internet inhibits the most advanced methods of delivery for distance courses.

**The level of commitment to distance education by a university's leadership affects implementation.** During site visits to 9 universities and through an administrative query completed by all 15 universities that were a part of this evaluation, the Program Evaluation Division observed wide variation in the implementation of distance education. The observed differences reflect a varied level of commitment to distance education and different approaches to delivering distance education, both of which depend on the resources dedicated to implementation.

At East Carolina University and Appalachian State University, the strong commitment to distance education by each campus's administration has resulted in distance education programs that are fully integrated into their missions. Both universities view distance education as an important part of stimulating enrollment growth. Appalachian State University has to limit on-campus enrollment growth because the campus has run out of space. Therefore, it is expanding their Appalachian Learning Alliance to meet enrollment targets. Through its partnership with the North Carolina Community College System, Appalachian State University attracts students that cannot travel to the Boone campus. Faculty at East Carolina University and Appalachian State University understand that part of their

responsibilities include teaching on-campus and distance education courses to meet the needs of their students.

Conversely, at UNC-Chapel Hill distance education is not integrated into the overall mission of the university. University leadership support distance education, but the decision to offer distance education programs and courses is made by the deans of individual colleges and schools at UNC-Chapel Hill. Differing attitudes toward distance education by the deans affect whether distance education is a priority. The Schools of Education and Health Sciences have created several online programs to meet the needs of teachers and health care professionals, whereas the College of Arts and Sciences views distance education as ancillary to on-campus courses because distance education courses are delivered via the Friday Center for Continuing Education. In addition, faculty in the College of Arts and Sciences who teach online do not get credit for teaching these classes as part of their normal teaching load.

The leadership at Winston-Salem State University, Western Carolina University, and UNC-Wilmington are in the process of strengthening their commitment to distance education. Winston-Salem State University leadership knows that distance education will grow, but it wants to make sure that distance education courses have the same academic integrity as on-campus programs. The leadership at Western Carolina University reported they are in a transition stage with the implementation of distance education. Distance education has been a separate activity, and the university is in the process of integrating educational outreach faculty into the colleges and changing how distance education is funded on campus. UNC-Wilmington is expanding offerings in distance education and developing an approach that meets the needs of its region.

Several campuses have a limited commitment to distance education as reflected in Exhibit 3 (percentage of distance education courses by campus). Less than 5% of the courses offered at UNC-Asheville, Elizabeth City State University, and UNC-Charlotte are distance education courses. In comparison, distance education courses comprise over 10% of the courses offered at six of the other campuses. The level of commitment by campus leadership is an important component of successful implementation of distance education because how resources are dedicated affects the way distance education is delivered by campuses.

**UNC campuses vary in their approach to providing support for distance education.** The leadership at East Carolina University has made a strong commitment to distance education, and as a result, they lead the UNC System with 20% of their courses taught through distance education. Distance education is so important to East Carolina University's mission that new faculty understand when they are hired that they will teach online classes and on-campus classes. The university has invested in staff and technical resources to ensure faculty can design distance education courses and have the necessary technical resources to teach successfully online. North Carolina State University has also made a significant investment in distance education through its Distance Education & Learning Technology Applications program, also known as DELTA, where faculty have access to the technology, training, and support needed for creating and teaching courses online. UNC-Pembroke has employed a different approach by

investing in satellite television and collaborating with nearby community colleges to teach students that cannot come to campus and may not have access to broadband Internet service. Other universities have not made as strong of a commitment to distance education because their leadership has not made it a priority or they have limited resources to invest in the staff and technical services needed.

#### 4. What improvements could be made for distance education in the UNC System?

The purpose of the University of North Carolina (UNC) Tomorrow initiative was to determine a proactive manner for UNC to effectively and efficiently fulfill its mission. The UNC Tomorrow report made it clear that distance education is an important strategy for the UNC System to increase access to higher education and cope with expected enrollment growth.<sup>16</sup> Data collected from campus faculty for this evaluation support the UNC Tomorrow report but also revealed little systemic support for implementation of distance education for campuses. Efforts by UNC General Administration, such as issuing guidelines for establishing and approving distance education programs, providing one-time grants to create distance education programs, and creating the UNC Online portal for all online courses offered throughout the UNC System provide some evidence of support for distance education system-wide.

UNC General Administration created the Teaching and Learning with Technology Collaborative to foster institutional collaboration by assisting in identifying and implementing effective practices, common services, and shared resources for distance and technology-based education. This service has been eliminated to meet budget reduction targets, but the function still exists through campus collaboration. UNC-Pembroke will host the annual Teaching and Learning with Technology conference in an online environment in the spring of 2010 to provide a statewide forum to network and exchange information about best practices.

Each campus has designed distance education to fit their mission and meet the needs of their students and their region of the state. However, the wide variation of models among the campuses creates inefficiencies across the UNC System. Some campuses are leading the system with significant staff and technology resources dedicated to distance education, and others are struggling to provide distance education with limited staff and technology. Campuses should have access to the essential tools necessary to utilize appropriate technology for course development and delivery. Nevertheless, technology utilized should not necessarily be uniform across all campuses. Differences in development will still exist and may be necessary in order to avoid duplication.

UNC General Administration is in a position to provide support for distance education among campuses and to facilitate system-wide collaboration. UNC Online is an example of one way UNC General Administration has created a more systemic approach to provide access to information about distance education programs and courses at all UNC campuses. Another example is the effort underway to create an online proctoring system for

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<sup>16</sup> University of North Carolina Tomorrow. (2007, December). *University of North Carolina Tomorrow Commission: Final Report*. Retrieved from [http://www.northcarolina.edu/nctomorrow/reports/commission/Final\\_Report.pdf](http://www.northcarolina.edu/nctomorrow/reports/commission/Final_Report.pdf).

all campuses for administering exams to distance education students. However, more direction and collaboration is needed in order to leverage resources to strengthen the efforts of each campus in providing access to higher education in North Carolina.

The following action steps by UNC General Administration would follow the intent of previous study recommendations to improve the development and delivery of distance education throughout the UNC System:

- work with campuses to create distance education development and technology standards to encourage the most cost-effective, feasible technologies (e.g., generate development cost estimates for courses to establish cost-containment guidelines);
- encourage campuses to determine the most efficient and effective manner of providing distance education instructional support for faculty;
- foster collaboration among campuses to create a distance education development consortium that would benefit all campuses;
- encourage campuses with more advanced instructional support to share resources with other campuses through memorandums of understanding or fee-for-service arrangements;
- use distance education grant funding to build sustainable staff and technology resources on campuses with limited distance education resources; and
- continue development and initiation of system-wide agreements for technology and services to reduce costs and increase economies of scale (e.g., the system-wide contract negotiation with Blackboard as an option for course management software).

UNC General Administration's continued effort in these areas for distance education will allow the UNC System to increase access to higher education in North Carolina and meet the goals set out in the UNC Tomorrow report.

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## Appendix

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Appendix A: Sampling Methodology for Development and Delivery Courses

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## Agency Response

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A draft of this report was submitted to the University of North Carolina General Administration to review and respond. Its response is provided following the appendix.

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## Program Evaluation Division Contact and Acknowledgments

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For more information on this report, please contact the lead evaluator, Michelle Beck, at [michelle.beck@ncleg.net](mailto:michelle.beck@ncleg.net).

Staff members who made key contributions to this report include Sean Hamel, Carol Shaw, and Pamela L. Taylor. John W. Turcotte is the director of the Program Evaluation Division.



## Appendix A: Sampling Methodology for Development and Delivery Courses

### Development Courses

As part of an administrative query to university administrators, campuses provided a list of three of the most recently developed distance education courses (new courses or existing courses converted to a distance education method of delivery) and three of the most recently developed on-campus courses for each discipline. Campuses were asked to list courses created since January 2004. Campuses identified 1,979 new courses (802 distance education courses and 1,177 on-campus courses).

The Program Evaluation Division selected the courses identified as developed for the 2008-09 or 2009-10 academic years in order to determine the most recent costs for course development (n=801). The Program Evaluation Division stratified the sample by funding category (four categories associated with enrollment growth) and type (distance education and on-campus) and randomly selected 12 courses for each category and type (n=96). To ensure each campus provided information on at least one on-campus course and one distance education course, six additional courses were randomly selected from the following universities:

- Fayetteville State University (one on-campus course and one distance education course)
- North Carolina Agricultural & Technical State University (one on-campus course)
- North Carolina Central University (one distance education course)
- University of North Carolina (UNC) at Asheville (one distance education course)
- Winston-Salem State University (one on-campus course)

The final sample consisted of 102 courses (51 distance education courses and 51 on-campus courses).

### Delivery Courses

The Program Evaluation Division obtained the Course Description Table File for academic year 2007-08 from UNC General Administration (N=92,111 course sections). Per the Program Evaluation Division's request, the file excluded courses delivered at the North Carolina School of Arts and the North Carolina School of Science and Math. UNC General Administration included information on student credit hours and headcount to determine whether courses were on-campus or off-campus. Courses were considered on-campus courses if 100% of student credit hours were generated by on-campus students; similarly, courses were considered distance education courses if 100% of student credit hours were generated by off-campus students. The course file contained 82,714 on-campus course sections (30,162 unique courses) and 8,342 distance education course sections (4,272 unique courses). Course sections with mixed enrollment of on- and off-campus students were excluded from the sampling frame.

The Program Evaluation Division expected delivery costs to differ by campus because of variation in average faculty salaries. Therefore, a unique identifier for all courses that combined institution code, course number, and discipline was used to match each distance education course to its on-campus course equivalent (n=2,603 matched courses). The Program Evaluation Division stratified the sample of course pairs by institution and funding category and randomly selected 6 to 14 course pairs for each institution (based on the proportion of matched courses by funding category). Once course pairs were identified, the Program Evaluation Division selected specific course sections to collect delivery costs. As much as possible, course sections with the highest enrollment were selected. The final sample consisted of 146 course pairs (146 distance education course sections and 146 on-campus course sections).

The Program Evaluation Division worked with each campus to ensure that the identified courses were appropriate for these analyses and substituted courses as needed.





# The University of North Carolina

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April 12, 2010

Mr. John Turcotte, Director  
Program Evaluation Division  
North Carolina General Assembly  
Legislative Office Building, Suite 100  
300 North Salisbury Street  
Raleigh, North Carolina 27603-5925

Dear Mr. Turcotte:

Thank you for the opportunity to review and comment on the Program Evaluation Division's Distance Education Report. Overall, the report provides a good analysis of the development and delivery methods associated with online and distance education and the role that online programs play in extending access to citizens of North Carolina.

Generally, we agree with the report's conclusion that online and distance education courses cost more overall to develop than on-campus courses. This conclusion comports with our own findings and studies by others outside the UNC system. I should note that while we frequently lump online and distance (face-to-face) education together, there is a difference in cost of course development between the two as well. It should also be noted that the more complex nature of the material and processes in an online course requires frequent refreshing, so development and revision are part of an on-going cycle for effective instruction in the online environment. Courses for online and distance delivery are likely to have an ongoing higher cost structure for revision. However, in the longer term costs may decrease due to faculty and staff's increasing skills, comfort, and knowledge about technology as well as potential breakthroughs in educational technology. For example, at ECU, faculty are hired with an expectation that they will need to be involved in distance or online education. We should also remember that the reduction in space needs on a campus is a costs savings that will grow over time. But it is hard to predict future cost patterns because we expect technology for educational achievement and for delivery to continue to evolve and it is difficult to anticipate what the cost structure will be of future developments.

Since the early 2000s, UNC General Administration has been providing grants to campuses to support the development of online courses and degree programs. This was made possible by strong legislative support and funding for developing distance education and online courses and degree programs. General Administration encouraged campuses to focus on putting whole degree programs online. The grants to the campuses typically supported faculty release time, instructional and technical support, and organizational support to effectively complete and begin offering the

program. In building UNC Online and individual programs, there was a deliberate decision to allow campuses to develop at a pace appropriate to their mission, campus commitments, and faculty willingness to embrace new modes of delivery. Nationwide, university-system attempts that did not incorporate these variations have failed, the most spectacular one being the online initiative by the University of Illinois.

One of the core issues is the role of centralization versus decentralization in online and distance learning. UNC and its campuses are guided by documents (“White Papers”) produced for UNC GA and a recent outside consultant, Dr. Frank Mayadas, a leading figure in shepherding online and distance education in America through the Sloan Foundation. Dr. Mayadas had this advice: “As usual, a rule of thumb would be to encourage the campuses like E. Carolina to push on even harder, and to move those not heavily involved or interested in online education, at a pace they can handle.” Regarding the issue of centralization, Dr. Mayadas states “In my opinion, it is advisable for UNC to strengthen its existing UNC Online central effort in a modest fashion, while simultaneously continuing to emphasize the primary role of campuses.”

There has to be a balance between what GA does and what the campuses do. It is not an easy balance to reach and is a continuing work in progress. For example, GA negotiated a three-year contract with Blackboard (which owns the two main commercial course management systems) for reduced rates our campuses can utilize. The campuses are not forced to adopt a Blackboard course management system but if they want to use it GA has used the power of numbers to get favorable rates. Some campuses prefer to use open source software like Moodle rather than a commercial course management system. This is a careful balance of campus wants and needs with efficiencies that the system can bring. UNC’s strategy attempts to foster the delicate relation of a central administrative unit to the multiple campuses in the system in a way that moves everyone forward.

Further, based on Dr. Mayadas’s advice, General Administration has established a Project Team for UNC Online and more broadly to guide the development of online and distance education in UNC. The team is composed of representatives of the campuses (distance learning and technical support) and General Administration and is working to prioritize the next steps for UNC Online. It will be our main vehicle for addressing which issues can most effectively be addressed by a more centralized response and which can be better addressed in a decentralized fashion.

There are a number of suggestions at the end of the report about which we offer the following comments.

**Work with campuses to create distance education development and technology standards to encourage the most cost-effective, feasible technologies (e.g., develop development cost estimates for courses to establish cost containment guidelines)**

The primary method for funding of campus projects has been through RFPs. The budgets for those projects were carefully scrutinized to attempt to have a balance of the components needed for a successful project and at a reasonable cost. The dialogue back and forth between GA and the campuses has contributed to both GA and the campuses understanding what an efficient budget is for a course/program development project. The instructional technology component is as important or maybe more important than the course management delivery technology since it is linked to providing the most effective learning experience in this environment. UNC GA has fostered the Online Quality Council which is focused on the quality of the educational experience in an online environment. The Council has a representative from each campus appointed by the Provost. We are beginning our discussion about what the direction should be for what follows our current contract with Blackboard. Naturally, we are considering a lot of options including discussion with the community college system to determine if we can work together on the technology support.

**Encourage campuses to determine the most efficient and effective manner to provide distance education instructional support for faculty.**

There is a lot involved in providing this support including a course management system, instructional design support, proctoring support for online students, etc. As indicated we have in place a system-wide contract for the course management system, and we are working jointly with one campus, ECU, to build an online proctoring management system that will be a tremendous help to faculty teaching in an online environment. The Project Team has identified assembling and/or building a set of modules to help faculty be more effective online instructors. It is also exploring developing some online modules for students that would help them understand online courses and how they can be more effective online learners. These modules will, in some instances, be existing modules from one campus that will be made available for all campuses, and in others GA will contract with one or more campuses to build the modules.

**Foster collaboration among campuses to create a centralized distance education development consortium that would benefit all campuses.**

Some campuses may be interested in this and others may not. Effective centralization grows out of a careful dialogue about how the campus needs can be met. Interinstitutional registration, an online proctoring system, and UNC Online itself are all examples where, after exploration with the campuses we have built centralized capability to perform a task. It is unlikely, and likely inefficient, that campuses would give up all local development activities. We have discussed with the Project Team for UNC Online that we might support some facilities such as a web video function on a particular campus to be used by all the campuses. But the cost of small scale video production is dropping and it could end up more costly to centralize. With each option a careful assessment is made to determine what the campuses need and the best combination of centralization and decentralization to serve that need.

**Encourage campuses with significant instructional support to share resources with other campuses through memorandums of understanding or a fee-for-service arrangement.**

As indicated, sometimes centralization makes the most sense and sometimes decentralization makes the most sense, and sometimes a combination does. What may be most effective is to work with campuses that are relatively close together to share services if they are having a problem sustaining resources. On most campuses there is continuity between support for improving teaching and learning (many have a center of that name) and the online and distance education development office. With those offices in place and with grants for degree program development, funds are available as part of grants to the campus or combination of campuses to hire an instructional designer/developer to assist the faculty member. The UNC Online Project Team is trying to expand faculty and student support by developing online modules for faculty and students that would be available free of charge across the system. The expectation is that there would be a module for the faculty on instructional design in the Web environment.

**Use distance education grant funding to build sustainable staff and technology resources on campuses with limited distance education resources.**

A grant program to support the development of online degree programs can provide initial funding for the support staff, but sustainability will have to be based on mounting successful online and distance degree programs that establish a revenue stream to support the staff supporting the program.

**Continue development and initiation of system-wide agreements for technology and services to reduce costs and increase economies of scale (e.g., the system-wide contract negotiation with Blackboard as an option for course management software).**

As indicated above, the issue of what comes next in the area of course management systems is an ongoing discussion with the Project Team for UNC Online and with the distance education and information resources units on campuses. Obviously a system contract is one way to go, but several campuses are exploring using open source software such as Moodle, which could proved to be even more cost effective.

**Conclusion**

While the primary focus of this study is on the cost of distance and online development and delivery of courses in comparison with on campus development and delivery, this issue fits in a larger context of the overall goals of public post-secondary education in North Carolina. As Chairman of the Board of Governors Hannah Gage and President Erskine Bowles have emphasized, online and distance education are key components of an overall strategy to significantly expand access to college for North Carolina residents. With both online programs and site-based distance programs, college and university programs are being taken to where students are since many students of all ages face barriers that will not permit them to relocate to a college or university campus. Online and distance education are also

key components in student success and increasing the number of bachelor's degrees in North Carolina. Continuing education for most citizens is a new fact of life and the availability of master's degree programs and post-baccalaureate certificate programs online will be a key to meeting this need since for many older citizens relocation to a campus for education is not feasible. It should be noted that as of April 4, 2010, UNC Online listed 226 online degree, certificate, or licensure programs. This is clearly one of the leading initiatives in the country for online learning, and this judgment was confirmed by Dr. Mayadas in his assessment of our programs. Chairman Gage and President Bowles are also focused on efficiency in all our activities and believe that the availability of online courses combined with the interinstitutional registration system will contribute to speedier completion of degrees since students can integrate a needed course from another campus into their program. President Bowles and President Scott Ralls of the Community College System are working on a new level of articulation between the systems that will involve upper-division online degree completion programs which will both allow students to stay in their community and receive continuing support from the community college while enrolled in a university program. We are ever mindful of cost, but we also believe that the results to be gained in the achievements of students of all ages makes the investments in online and distance education worthwhile.

Sincerely,



Alan Mabe

AM/la

copy: President Erskine Bowles  
Michelle Beck, Program Evaluation Division  
Vice President Anita Watkins  
Associate Vice President Ginger Burks  
Associate Vice President Jim Sadler  
Director Erin Schuettpelz