

**The North Carolina Community College System
And
The University of North Carolina
Joint Report on
The NCCCS UNC 2 + 2 E-Learning Initiative
(Session Law 2006-66, Section 9.1)**

**Submitted at the Request of
The North Carolina General Assembly**

Dr. R. Scott Ralls, President
North Carolina Community College System

Dr. Thomas W. Ross, President
University of North Carolina

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Contact Persons:

Dr. Saundra Wall Williams, Senior Vice President
Division of Technology and Workforce Development
North Carolina Community College System

Dr. Alisa Chapman, Associate Vice President
Academic Planning and University School Programs
University of North Carolina General Administration

Part I
North Carolina Community College System
Session Law Summary

NCCCS/UNC 2 + 2 E-Learning Initiative
2011-2012

Pursuant to Section 9.3(d) of Session Law 2010-31, the University of North Carolina (UNC) and the North Carolina Community College System (NCCCS) shall report by April 15, 2011, and annually thereafter, to the Joint Legislative Education Oversight Committee, the State Board of Education, the Office of State Budget and Management, and the Fiscal Research Division of the General Assembly on the implementation of the UNC-NCCCS 2 + 2 E-Learning Initiative. The attached report is in fulfillment of this requirement. The report includes:

- 1) The courses and programs within the 2+2 E-Learning Initiative;
- 2) The total number of prospective teachers that have taken or are taking part in this initiative to date broken down by the current academic period and each of the previous academic periods since the program's inception;
- 3) The total number of teachers currently in the State's classrooms, by local school administrative unit, who have taken part in this initiative;
- 4) The change in the number of teachers available to schools since the program's inception;
- 5) The qualitative data from students, teachers, local school administrative unit personnel, university personnel, and community college personnel as to the impact of this initiative
- 6) An explanation of the expenditures and collaborative programs between the North Carolina Community College System and The University of North Carolina, including recommendations for improvement.

(The reporting dates were amended by the General Assembly of North Carolina in the 2010 Session.)

The North Carolina Community College System (NCCCS) is dedicated to providing high-quality, easily accessible educational opportunities that encourage and support student success. In keeping with these objectives, funds provided by the 2 + 2 E-Learning Initiative have provided additional resources to create and expand online courses and programs, professional development services, and acquisition and implementation of needed infrastructure.

Courses and Programs within the 2 + 2 E-Learning Initiative

Background

In 2005, the North Carolina Community College System (NCCCS) and the University of North Carolina General Administration (UNC-GA) were the recipients of a newly created program called the 2 + 2 E-Learning Initiative. This initiative brought together the two higher education systems in the state to address the critical shortage of teachers in North Carolina. This collaborative effort was focused to develop online course content as a means to educate additional teachers in North Carolina. NCCCS creates online course content through the Virtual Learning Community (VLC) which provides a collection of quality online courses to the 58 community colleges. Online courses for pre-major education degrees provide access to students who may not be able to attend college in a traditional face to face method. Access to college has become increasingly difficult for many students throughout the state as funds for education have decreased due to the downturn in the economy, the expanding number of unemployed and displaced workers who have returned to college, and the rising cost of gasoline prices which inhibits travel for many students. The 2 + 2 E-Learning Initiative positioned the two systems with funds to meet the challenges facing our students in a depressed economy.

Initially, the two systems identified five pre-education programs under the North Carolina Comprehensive Articulation Agreement (CAA), whereby students may begin their education at a degree.

The 2 + 2 E-Learning Initiative funded VLC course development centers during the first three years of this grant that resulted in the successful completion of courses for the five online pre-education degrees in the North Carolina Community College System. The five online degrees are the Associate in Arts/Elementary Education (*online June 2008*), Associate in Arts/Middle Grades Education and Special Education (*online June 2008*), Associate in Science/Chemistry and Chemistry Education (*online June 2009*), Associate in Science/Biology and Biology Education (*online June 2009*), and Associate in Science/Mathematics Education (*online June 2009*). In 2011-2012, the VLC library of online courses has grown to XXX curriculum courses and XX continuing education courses. VLC courses are jointly owned by all 58 community colleges and available and accessible to all instructors in the system. (*See Appendices B and C*)

Since 2009, NCCCS expanded the focus of course and program development to the majors of science, technology, engineering and mathematics (STEM) education, nursing and allied health programs, developmental math, and enhancement of the content in the 20 most popular courses.

In 2008-2009, the State Board of Community Colleges first approved the funds for a VLC course development center focused on STEM course development. The center developed seven (7) courses and the corresponding labs. In 2009-2010, nine (9) additional courses with labs were developed. In addition to college level STEM courses, the VLC STEM Center developed three developmental math courses and one developmental chemistry course providing the necessary prerequisite knowledge to ensure the success of students as they enter programs of study in

STEM related majors. Courses developed in 2009-2010 completed the online Associate in Science/Engineering degree.

In 2010-2011, the North Carolina Community College System combined state appropriated VLC funds and 2 + 2 E-Learning Initiative funds to fund one VLC course development center that developed 11 math and science courses. Previously, two centers would have produced the same number of courses. By reducing the administrative costs of multiple centers, resources were used for additional course development. The development of these STEM courses completed six additional online degrees bringing the total to 37 online degrees available in the VLC.

It should also be noted that 2 + 2 funds support development of online continuing education courses as well as curriculum courses. Continuing education courses support the State's teachers and the workforce as they seek to meet the requirements of state job certifications and to remain current in their fields.

On May 20, 2011, the State Board of Community Colleges approved the funding and establishment of three permanent VLC Support Centers in the areas of Professional Development, Technology, and Quality and Assessment. Permanent centers provide for consistency and continuity in development of strategic goals and objectives, and more efficient use of funds, personnel, and resources.

Education Tools and Resources

Providing quality online course content is the main ingredient when developing an online course. However, engaging students and enhancing courses with additional learning tools is the key to success in any online course or program. VLC courses are embedded with engaging digital enhancements such as videos, interactive learning activities, and self assessments that present information to students in a new and interesting format. The 2 + 2 E-Learning funds provide faculty and students with resources that include online science labs, virtual microscopy programs, three-dimensional animations and videos of human anatomy, hundreds of online allied health textbooks, research reports and articles, and over 14,000 learning objects, professional development tutorials and free e-books found in the North Carolina Learning Object Repository (NCLOR). Professional development support for educators is available through tutorials in the NCLOR where they are accessible to all faculty and staff in the System. (*See Appendix A*)

The NCLOR contains over 14,000 teaching resources that can be searched and shared by faculty throughout the community college system and state. Staff and faculty from the community college system may request a login which provides access to all of the content including the NCCCS licensed collections. With a login, faculty and staff may also contribute learning objects to the repository. NCCCS faculty can also search the NCLOR content by accessing it through their college's learning management system. This access path provides single sign-on authentication for the user. To login as a guest or member, go to www.explorethelior.org.

The NCLOR portal site was redesigned in November 2011 and now provides a cohesive appearance between the portal page and the application dashboard. New features of the redesign include a subject cloud that organizes the posts added to the portal page; a mobile version for iPads, iPhones, and other portable devices; and a feature that allows users' emails to be automatically sent to their email accounts when new posts are published from the portal.

NCLOR content may be searched by discipline, collections, learning resource type, and academic level such as K-8, Higher Education, Professional Development, and Adult/Continuing Education to name a few. Learning Objects (LO) are also searchable by resource series and/or by selecting a specific VLC course. LOs are mapped to specific courses and listed on one page for easy access by instructors. Instructors may browse for information using the NCCCS Combined Course Library also accessible in the NCLOR. To further enhance courses, instructors may search the Fayetteville Technical Community College's i3D Objects collection for interactive 3-dimensional learning activities.

There are 228 professional development webinars and tutorials in the NCLOR which are accessible to faculty 24/7. These resources are appropriate for personal viewing as well as group training sessions. The self-paced training tutorials were updated in November 2011 to include procedural videos that help viewers follow a step by step visualization of new processes. Additional tutorials are added throughout the year as new software applications and learning management system upgrades occur. The VLC Professional Development Center is tasked with creating tutorials and other learning resources that are housed in the NCLOR.

New 2011-2012 2 + 2 E-Learning Initiative Projects

NCCCS initiated three new projects in 2011-2012 to give efficiency and organization to an increasingly diverse compilation of learning resources. The new projects are the Teaching and Learning Gateway, e-Text Reader Pilot Project, and the Virtual Computing Environment blade upgrade.

Teaching and Learning Gateway: In order to maximize utilization of all existing online resources, professional development tools, and learning platforms, NCCCS focused 2 + 2 funds on the development of a Teaching and Learning Gateway to unite all aspects of academic support and resources for the NCCCS faculty and students in one location. This multi-year project will provide centralized access to online resources, expand the use of these resources, and bring efficiencies to the process as duplicative services are identified.

The Teaching and Learning Gateway is one of the Implementation Priorities of the 2012 System Office Priorities Plan. The Gateway will unite all electronic resource systems and websites providing easy access to teaching, learning, and professional development resources for NCCCS faculty and students. Currently, these websites and resources reside in numerous dissimilar environments. These systems are difficult to find and many require unique logins. Without a consistent content platform and marketing and communication strategy, needed information is unavailable to faculty and students. The Teaching and Learning Gateway will provide access and efficiency to the academic and pedagogical needs of the NCCCS community.

The Teaching and Learning Gateway will be implemented in a three-phase development plan that will spread the costs over multiple funding years. In Phase I of the project, the leadership team will define the resources and content to be linked; evaluate and secure a hosting vendor; analyze and catalog the current content; link all content to a single hosting solution; evaluate and secure the software solution to develop the gateway; hire a part-time project coordinator; select project team members for all three phases; evaluate the ability to link all of the current systems and resources; and develop a common branding proposal. Technology requirements, metadata

schema for all resources and full implementation including marketing and training will comprise Phases II and III.

e-Text Reader Pilot Project: During the current fiscal year, 2 + 2 funds are providing resources for a new pilot project involving eight colleges which are testing four e-book reader software platforms that will allow students across the state to purchase affordable online textbooks and support student learning. This project provides an avenue for students to better utilize their educational dollars as well as to increase access to textbooks with built-in learning tools.

The e-Text Pilot Project will provide evaluation of e-Text software readers for faculty and students in our System. E-Text materials allow students to access textbooks in a digital form and provide enhanced features which include the ability to highlight, annotate, search, copy, paste, share, and print within the digital textbook environment. Four (4) software applications will be evaluated by eight (8) NCCCS colleges. Participating community colleges are Robeson, Fayetteville Technical, Surry, Wilkes, Southwestern, South Piedmont, Catawba Valley, and Caldwell Community College & Technical Institute. Funding allocations for this pilot will include travel expenses for participants and/or coordinators, training seminars on the individual software applications, research on best practices and other existing e-Text pilots, development of the criteria list for software evaluations, and the selection process of willing faculty members at each college to serve on evaluation committees.

At the conclusion of the pilot, a written report will be submitted to the Executive Director of eLearning and Technology Systems with the evaluation results and recommendations. The ultimate goal of the e-Text Pilot is to provide students with enhanced quality online reference materials at reduced prices which will support individual student learning and degree completions.

Virtual Computing Environment: The third 2 + 2 E-Learning Initiative project is the Virtual Computing Environment blade upgrade. The Virtual Computing Environment (VCE) is a remote access service that allows students and faculty to request or reserve a computer with a desired set of applications, and to remotely access it over the Internet. Students and faculty can use a number of advanced computer applications on Linux, Solaris, and numerous Windows environments. NCCCS and NC State have and will continue to work with community colleges wishing to provide additional specialized software for faculty and student course access. Funds designated for the VCE are through state appropriations.

The colleges save money due to fewer licenses needed when accessing asynchronously through the cloud as compared to loading software in computer labs; reduced need for new computer labs (which includes hardware savings as well as classroom utilization); extends the life of computers in the existing labs because less computing power is needed for access (computing power is in the cloud); reduced cost of IT support for computer labs; the ability to offer more asynchronous classes resulting in more FTE. Students save money by not having to purchase the software themselves, they can use older computers (not have to replace as often), and fewer trips to campus to use the computer labs.

The blade hardware currently in use is from 2007 and is less efficient than the technology available today. The older blades require more power and support than the proposed IBM HS22 blades. Through the use of the \$40,000 available through the 2+2 E-Learning Initiative Funds, NC State University will purchase blade hardware that will expand the use of VCE production

for up to fourteen additional community colleges. NC State University will purchase six (6) replacement IBM HS22 blades at the discounted educational consortium base purchase price of \$5,557 per blade. In addition, NC State University will purchase the power supply and networking upgrades necessary for the new blades. The new blades are not simply a one-to-one replacement of the retired blades, as advances in technology now provide approximately 10 times the capacity per blade of the original blades. Many more students will be served with the same number of blades.

The VCE business model provides community colleges a cost-effective alternative to expensive, traditional computer labs. The VCE will continue to support the seventeen (17) community colleges which currently participate in the VCE. Up to fourteen (14) additional community colleges may be added to the VCE with this expanded capacity. The additional community colleges will be selected via a competitive request-for-participation process, and will be provided the training necessary to fully utilize the cloud computing services.

The current community colleges using the VCE for 2012 are:

Alamance
Bladen
Cape Fear
Cleveland
Davidson County
Edgecombe
Fayetteville Technical
Guilford Technical
Mayland New 2012
Nash
Pitt
Roanoke-Chowan – New 2012
Sandhills
South Piedmont – New 2012
Surry
Tri-County
Wake Technical

Collaborative Resources

The NCLOR provides a vehicle for collaboration for faculty and staff in a single college, among multiple colleges, and among all levels of North Carolina academic entities. New resource series additions in 2011-2012 from other North Carolina entities are the North Carolina School of Science and Math, the North Carolina Alliance of Surgical Technology Educators, content for the Developmental Education Initiative, and additional items in the NC BioNetwork collection.

Collaborative projects between NCCCS and UNC-GA schools have provided the framework to share resources in the development of common goals. Two examples of 2 + 2 funds utilized for collaborative projects are the UNC Moodle Open Source Collaborative, a project of the UNC-GA and NCCCS that provides universities and community colleges with software to pilot the Moodle learning management system; and the Virtual Computing Environment between NCCCS

and North Carolina State University which uses blade technology in a cloud computing environment to provide software to students and college PC labs. Colleges receive professional development and technical support as part of these collaborative projects. Since its inception, 33 community colleges using 40 unique instances have participated in the Moodle Open Source Collaborative.

NCCCS has collaborated with East Carolina University (ECU) by providing a Moodle instance in the Open Source Collaborative for the ECU Project Heart program. This project provides free tutoring by ECU students for high school students who are struggling academically.

Another successful collaboration is the Virtual Computing Environment (VCE) which is now in its fourth year. Through the use of cloud computing, students are able to access expensive and highly sophisticated software platforms from their laptops or college computer labs. The ability to access the software through the VCE removes the need to upgrade personal and college computers in order to run the computer programs. Since the software is available 24/7 to faculty and students, there is greater utilization of software licenses and a reduced need for colleges to spend limited resources to upgrade equipment. This year 17 community colleges are participating in this program.

Academic collaboration has not been limited to other institutions of higher education. NCCCS is collaborating with the Career and College Promise participants and the North Carolina Virtual Public School (NCVPS) by sharing resources and infrastructure. Students enrolled in community college courses through the Career and College Promise program are using NCLOR interactive learning activities and assets embedded in their online courses. NCVPS is participating in the Moodle Open Source Collaborative for their online instruction platform.

Most recently, the School of Science and Math has contributed a resource series of 500 items to the NCLOR. This resource series includes items in the subjects of algebra, calculus, chemistry, history, physics, pre-calculus, and statistics. The School of Science and Math has also contributed 95 new music videos that include theory and how to play various musical instruments. These videos were contributed by faculty members. All 595 items are available and accessible in the NCLOR.

Quantitative Data Concerning Teachers

Many students across the state have enrolled in education degree programs with the intent of transferring to a four-year institution. Funds from the 2 + 2 E-Learning Initiative have provided the courses, online degrees and resources to meet the education enrollments. NCCCS - tracks the enrollment growth through data from its internal Data Warehouse. The Department of Public Instruction (DPI), NCCCS, UNC-GA, and the private colleges and universities do not share a uniform tracking platform that will follow a student throughout his/her educational career. For this reason, NCCCS can provide information limited to the number of students who graduate from the community college system with associate degrees in teaching, nursing, and other critically needed careers in our state, but cannot track the transfers to universities to show completion of bachelor's degrees. A large majority of student career choices require four-year degrees from a college or university. Degrees for public school teachers require a bachelor's degree. Many students who come to the community college system to begin their higher education careers transfer before they attain an associate degree. These students are not

counted as completers even though they have completed necessary coursework to transfer to a four-year institution. A Data Initiative is presently underway between NCCCS and SAS which will provide more in depth data collection to provide this missing information.

Since 2005, 9,415 students have graduated from the community college system with associate degrees in education. (*Figure 1*) The number of students enrolled in education courses during this same time period is provided in Figure 2 below. After several years of climbing enrollments, the number of students enrolled in the teacher education articulation programs decreased slightly in 2011.

Figure 1: Students Graduated with Education Associates Degrees

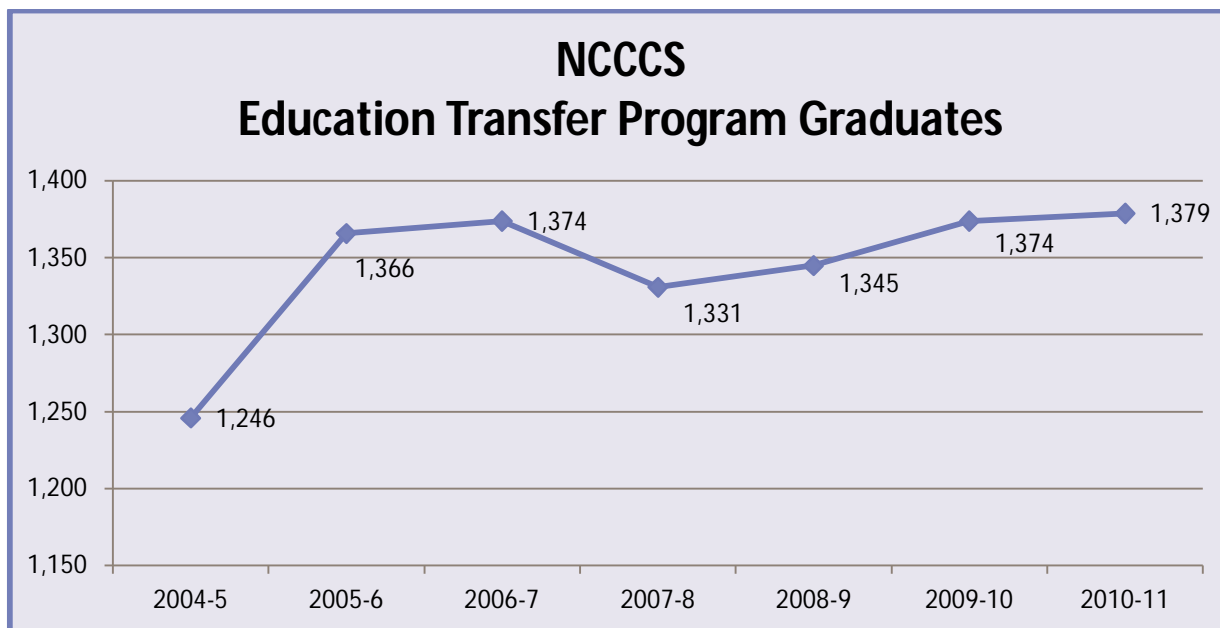
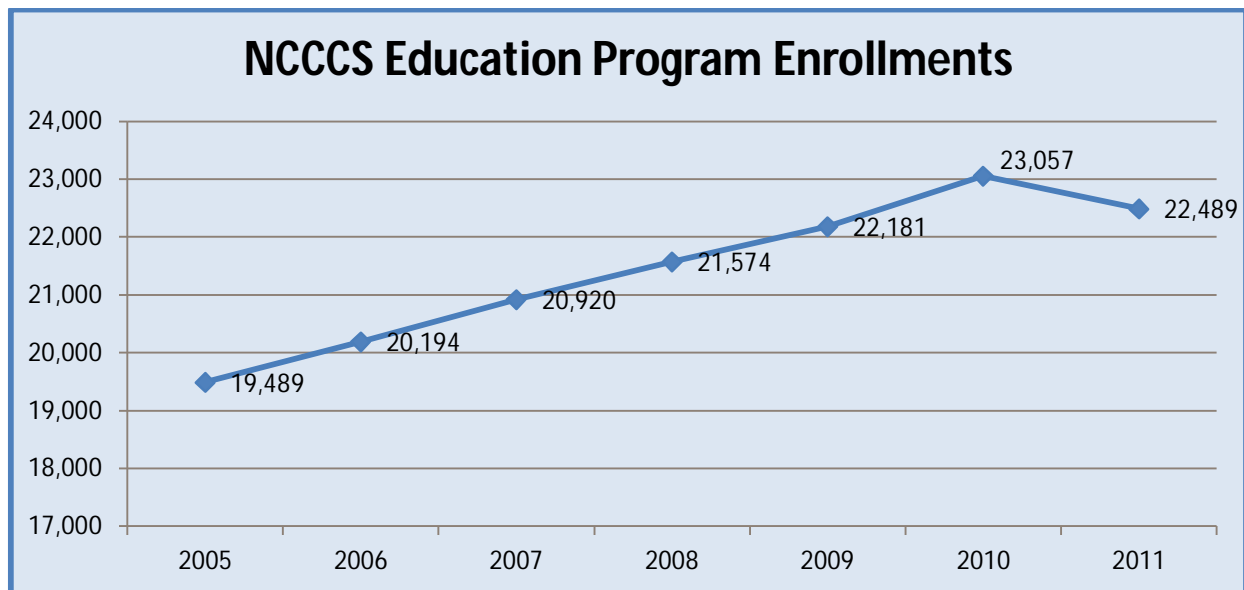


Figure 2: Students Enrolled in Associate Degree Education Programs 2005-2011



Qualitative Data

The North Carolina Community College System assumes the primary role in training and retraining the workforce in our state. As the national economy dropped to record lows causing high unemployment in our state, many North Carolina citizens turned to community colleges to learn new skills and careers. Because of proactive programs like the 2 + 2 E-Learning Initiative, the community college system was able to face the challenge of enrolling more students during a time of decreasing resources. The System was positioned with the help of distance learning courses and tools to step up and focus on teaching and learning as it led a bruised and hurting workforce of displaced students into new careers with cutting edge skills and technical knowledge. The economic downturn and financial strain on our educational institutions have again focused our colleges' resources towards the critically needed fields of education, especially in the areas of math and science, nursing and allied health, and other STEM-related fields. A large majority of new students coming to the community college system are enrolling in distance learning courses that allow students to access their education anytime, anyplace. The factors contributing to growth in distance education like the rise in fuel prices, unemployment and underemployment, lack of childcare and other support issues, scheduling conflicts, and decreased financial means have not changed since 2008. But, the infrastructure and personnel of the community college system have adapted to the economic environment and continued to provide quality distance courses and programs even in this depressed economy.

In 2010-2011, distance learning enrollments in the community college system were 44.9% of the total enrollments. This percentage in real numbers equals 843,114 course enrollments, with students receiving some or all of their education through distance learning courses. The percentage of FTE from distance learning enrollments was 42.05% of the total FTE received by the System. Continued growth is expected to be reported when the 2011-2012 enrollment statistics are released by the NCCCS Data Warehouse.

Figure 3: DL Curriculum Duplicated Enrollment 1998-2011

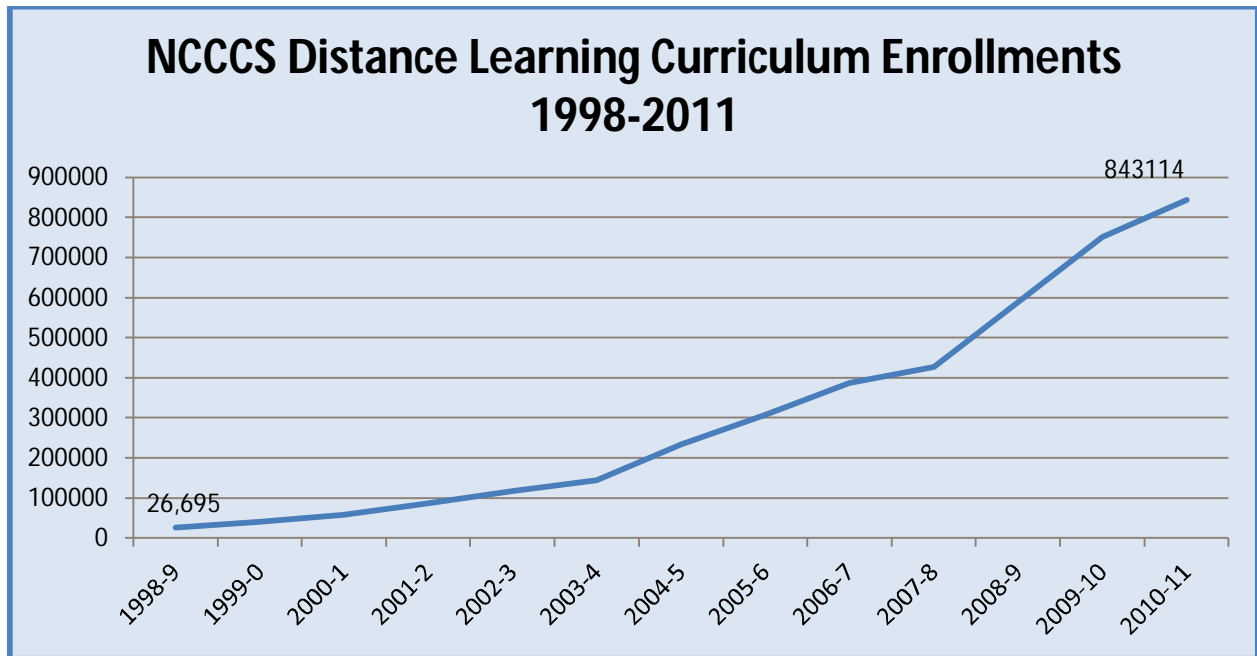
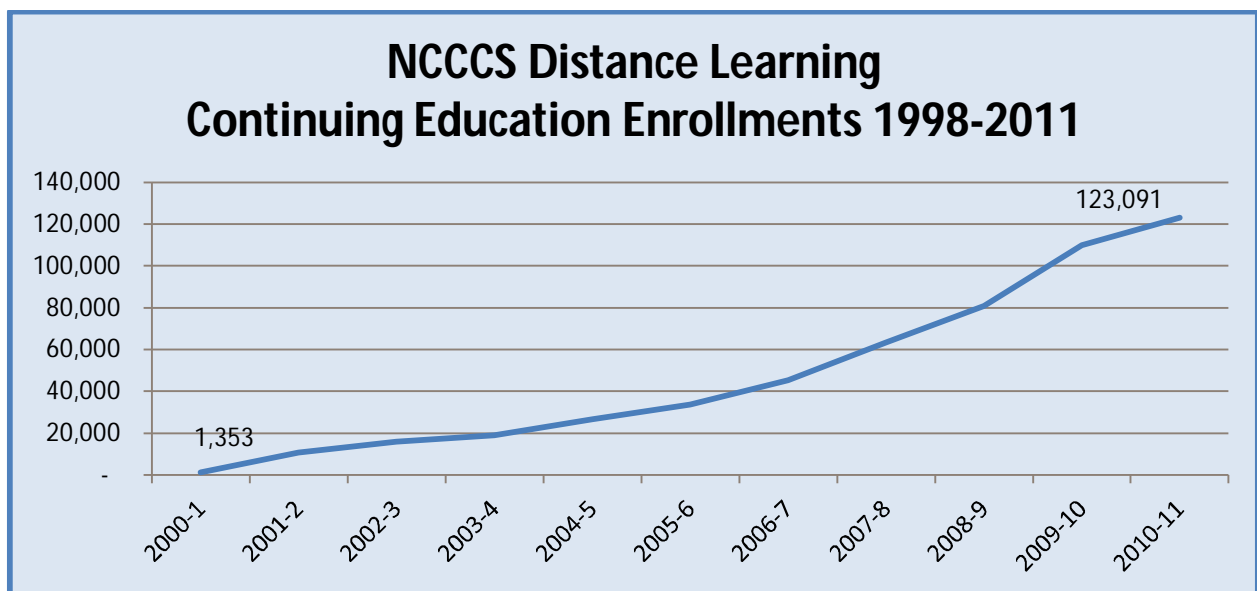


Figure 4: DL Continuing Education Duplicated Enrollment 2000-2011 (no distance enrollments recorded before 2000)



Course delivery data is available for all methods; however, the data does not reflect the degree programs represented by these methods. For that reason, it is difficult to document the impact of the 2 + 2 Initiative funds on specific program areas. However, a growing number of students are

completing their degrees online and many other students are taking a combination of seated and online courses to complete their programs. Until student transcripts state the delivery method of courses/degrees, the System will not be able to quantitatively report on the actual numbers of students affected by online teacher education sustained by funds and projects of the 2 + 2 E-Learning Initiative. Community colleges are currently able to report only completed credit hours and grades. Course delivery methods are not noted on student transcripts.

However, it is a statistical reality that more students in the community college system are choosing to enroll in distance learning courses. The percentage of the total students choosing distance learning courses is increasing each year while the students choosing traditional classrooms is dropping. To address the increasing needs of distance learning students, the 2 + 2 E-Learning Initiative's funds have been focused on educational resources that target the critical needs of our state and students. Student access anytime, anyplace to the courses and academic tools needed for success has allowed students to continue their educational programs and graduate during one of the most depressed economic periods in our state's history. It is critical that future investments of time and financial resources be placed in the areas of technology infrastructure, online course development, and the accompanying tools and resources.

Expenditures for Fiscal Year 2011-2012

In 2011-2012, 2 + 2 E-Learning Initiative funds were focused on e-learning resources and tools, infrastructure upgrades and efficiencies, professional development, and online marketing of resources to ensure that faculty and students can utilize the available resources provided through this initiative.

Figure 5: 2+2 Expenditures for Fiscal Year 2011-2012

2 + 2 E-Learning Initiative	2011-2012 Budget \$653,000.00
TEACHER EDUCATION RESOURCES	
Late Nite Labs Biology and Chemistry	10,500.00
Virtual Microscope: Basic Biology	12,500.00
V-Scope Explorer: Anatomy & Physiology	12,500.00
Monterey Institute/NROC Learning Objects	19,444.00
Anatomy TV – National Library Alliance	37,990.00
Stat!Ref – National Library Alliance	
Dental Database-National Library Alliance	
NCLOR License and Training	209,000.00
CHOICE – American Library Assn. Subscription	495.00
Category Expenditures	\$302,429.00
INFRASTRUCTURE	
NCLOR Hosting	44,752.32
NCLOR ITS/Project Manager	80,000.00
Open Source Collaborative - Moodle	102,768.00

Virtual Computing Environment (VCE) Upgrades	40,000.00
Category Expenditures	\$267,520.32
VIRTUAL LEARNING COMMUNITY (VLC) PROJECTS	
Teaching and Learning Gateway	40,000.00
e-Text Readers and Curriculum Pilot	43,000.00
Category Expenditures	\$83,000.00
Total Expenditures	\$652,949.32

2011-2012 Recommendation Review

In 2010-2011, the North Carolina Community College System presented the following recommendations to address online learning needs and resources.

It was recommended that:

- **NCCCS will develop an online instructor certification course to enable instructors to teach more effectively, thereby promoting student success.**

In 2011, The Virtual Learning Community Quality and Assessment Center hosted at Surry Community College completed the first of a four course series for online teacher certification. The final three modules of this in-depth certification series will be completed in June 2012. Funds from the 2 + 2 E-Learning Initiative provided the development platform for these courses. The courses were developed in Moodle through the Open Source Collaborative Pilot. These courses are available to all community college instructors free of charge in both Moodle and Blackboard learning management systems.

- **NCCCS will continually improve the Top 20 online curriculum courses.**

The following table provides the 2010-2011 Top 20 Courses and the average annual enrollment figures.

Figure 6: Top 20 Course List, Data source: NCCCS Data Warehouse

Course ID	Course Name	Average Annual Enrollment
ENG111	Expository Writing	49,882
PSY150	General Psychology	42,020
CIS110	Introduction to Computers	36,341
MAT070	Introductory Algebra	31,787
MAT060	Essential Mathematics	22,862
SOC210	Introduction to Sociology	22,145
ACA111	College Student Success	18,644

ENG090	Composition Strategies	16,039
COM231	Public Speaking	14,329
MAT080	Intermediate Algebra	14,323
RED090	Improved College Reading	14,235
SPA111	Elementary Spanish I	13,999
ENG090A	Comp Strategies Lab	12,923
ENG112	Argument-Based Research	12,873
BUS110	Introduction to Business	12,016
ENG114	Prof Research & Reporting	11,983
ART111	Art Appreciation	11,832
MAT161	College Algebra	11,270
PSY241	Developmental Psych	11,097
ENG113	Literature-Based Research	10,315

In a continuous effort to provide quality, access, and engagement for existing online courses, NCCCS e-learning staff members have linked online resources in the NCLOR to each course to provide instructors with digital content, interactive learning objects, and links to other resources available to instructors and students. There are 14,530 items searchable by discipline area in the NCLOR which provide instructors with a wealth of options in which to engage students in specific subject areas.

NCLOR - Total Items by Discipline

Figure 7: NCLOR Items by Discipline Data Source: NCLOR Biannual Report, July-December 2011, page 13

Discipline	Count
Agricultural and Natural Sciences	1703
Arts and Humanities	2470
Business	341
Career and Technical Education	482
Computer Science	183
Design	35
Education	535
Engineering	593
Health Medical Sciences	912
Information Sciences	27
Language Arts	196
Mathematics	3084
Other	138
Physical Sciences	2783
Social and Behavioral Sciences	1048
Total	14530

Through the Virtual Computing Environment, students are able to access software used in the Top 20 courses on a 24/7 basis at no charge to the student. Microsoft Office 2007

is the most widely used student software package and it is used in all of the Top 20 courses.

- **NCCCS will redesign online developmental math modules.**

In 2011-2012, 65% of recently graduated high school students who entered a North Carolina community college were required to take at least one developmental course before beginning college level courses. Fifty-three percent (53%) of the same student group was required to take some level of developmental math as a prerequisite for college level math courses. MAT 060 Essential Mathematics, MAT 070 Introductory Algebra, and MAT 080 Intermediate Algebra, are all found on the Top 20 course list with a combined average annual enrollment of 68,972. The need to provide online developmental math resources to students in the areas of greatest need prompted the System to focus efforts on a developmental math redesign initiative. A task force of System Office and college developmental math faculty worked tirelessly for a year to redesign eight modules that included the learning content from courses MAT 060, 070, and 080. The redesigned modules listed as DMA 010 Operations with Integers, DMA 020 – Fractions and Decimals, DMA 030 – Proportions/Ratios/Rates/ Percents, DMA 040 – Expressions, Linear Equations, Linear Inequalities, DMA 050 Graphs and Equations of Lines, DMA 060 – Polynomials and Quadratic Applications, DMA 070 – Rational Expressions and Equations, and DMA 080 - Radical Expressions and Equations are designed to provide students with a foundational progression in eight- four week courses giving students an opportunity to progress at their own speed mastering the content. Students take a diagnostic test for placement and are only required to take the modules needed based on the diagnostic assessment.

The Virtual Learning Community Quality and Assessment Center has coordinated the online development of these modules which will be completed in June 2012 and available for use by the colleges. Multiple Interactive Learning Objects have been created and contributed to the NCLOR to enhance each module. Additional resources from other math discipline collections like Khan Academy, NROC, the School of Science and Math, and VLC developed self assessments have been contributed to the NCLOR and embedded in these modules. Resources in the NCLOR will be mapped to each module providing NCCCS instructors with searchable learning content organized on one page.

- **Other areas of critical needs will be addressed such as nursing and allied health, engineering, and technology by continued funding of STEM resources and course development through the VLC.**

NCCCS has met the original goal of the 2+2 E-Learning Initiative; developing online education degrees to address the critical need for teachers in our state. NCCCS is committed to continuing to expand courses and resources to support student success with online education degree programs especially in the areas of mathematics and science; and to expand the scope to include allied health, nursing, engineering, and technology as current and future objectives for these funds.

NCCCS is focused on supporting STEM, nursing, and allied health programs through VLC course development. As each course is created, multiple interactive learning

objects are also developed and contributed to the NCLOR for use by faculty. The NCLOR, Late Nite Labs, V-Scope Explorer, NROC Learning Objects, Anatomy TV, Stat!Ref, the Dental Database, and CHOICE Reviews Online all support these critical needs courses and programs. All of these learning resources have been made possible through the 2 + 2 E-Learning Initiative.

- **NCCCS will participate in a pilot development project for microbiology labs using Late Nite Labs.**

Late Nite Labs continues to add labs to both chemistry and biology collections. Currently, there are over 160 customizable chemistry and biology labs. Newly developed microbiology labs will be available for NCCCS instructors free of charge in the summer semester 2012.

- **NCCCS will acquire additional learning resources for mathematics, nursing, allied health, engineering, and technology.**

All tools and resources licensed with 2 + 2 E-Learning funds support nursing and allied health, STEM courses and programs, and new course development. Additional collections and interactive learning activities have been added to the NCLOR in 2011-2012 to support these program areas. New NCLOR collections include Khan Academy, National Science Foundation, School of Science and Math, History Animated, Nobel Prize Education series, updates to the NC BioNetwork series, Open Yale Course series, and Princeton University lecture series support these subject areas.

- **NCCCS will continue to research online resources for system-wide use and pedagogically sound teaching principles for online courses.**

Twenty-eight (28) professional development items have been contributed to the NCLOR in 2011-2012. These items are accessible by faculty and staff of the NCCCS. The Teaching and Learning Gateway will connect all NCCCS resources and tools for use by NCCCS faculty and staff. The online teacher certification course series developed by the VLC will provide faculty with quality modules based on current pedagogical standards and training on the latest online course tools and engagements.

- **Continued emphasis is placed on ADA compliance in all VLC and community college distance learning courses.**

The NCCCS has placed great emphasis on training and communication about ADA compliance in all course work. The VLC and community colleges have developed tutorials, webinars, and workshops on ADA compliance during 2011-2012. By law, all higher education courses must be ADA compliant whether they are in traditional settings or online. The VLC Professional Development Center has created and contributed online tutorials and an accessibility manual to the NCLOR for use by faculty and staff. All VLC courses are ADA compliant and available for download by all 58 community colleges.

- **NCCCS will evaluate and pilot the use of e-books to accompany VLC courses.**

During the 2011-2012 course development cycle, VLC subject matter experts added an e-textbook to the list of recommended texts to accompany each course. By providing an electronic version of a text for faculty to preview and integrate into their course, adoption of an online text is more likely to occur. There is a significant savings to students when e-textbooks are used.

The NCLOR contains over 151 free e-books and an entire collection of free e-textbooks from Flat World Knowledge that are available to faculty and students.

NCCCS used 2 + 2 funds to fund the e-Text Pilot Project to evaluate e-Text software readers for faculty and students in the community college system. E-Text books allow students to highlight, annotate, search, copy, paste, share, and print within the digital textbook environment. Four e-reader software applications will be evaluated by eight NCCCS colleges. Evaluations from the participating colleges will determine the next phase of e-textbook implementation.

- **Additional collections/ebooks should be acquired for the NCLOR.**

During the 2011-2012 academic year, nine additional resource series were added to the NCLOR. All resource series collections are updated and new items are added on a continual basis.

2012-2013 Recommendations

- Expand resources to continue to develop the Integrated Teaching and Learning Gateway.
- Expand utilization of e-book technologies.
- Collaboration with other educational entities to maximize resources and minimize costs.
- Evaluation of effectiveness of technologies used in distance learning.
- Research and analytical interpretation of data to make strategic decisions for incremental e-learning program improvements and policy adjustments.

Appendices

Appendix A

2011-2012 Expenditures for 2+2 E-Learning Initiative

Student, Teaching, and Learning Resources Implemented by the NCCCS

Educational Resource: Virtual Learning Community (VLC) Quality & Assessment Center
Project: Teaching and Learning Gateway

Description: The Teaching and Learning Gateway is one of the Implementation Priorities of the 2012 System Office Priorities Plan. The Teaching and Learning Gateway will bring together all electronic resource systems and websites providing easy access to teaching, learning, and professional development resources for NCCCS faculty and students. Currently, these websites and resources reside in numerous dissimilar environments. These systems are difficult to find and many require unique logins. Without a consistent content platform and a comprehensive marketing and communication strategy, needed information is unavailable to faculty and students or they are unaware that it exists. The Teaching and Learning Gateway will provide access and efficiency to the academic and pedagogical needs of the NCCCS community.

The Teaching and Learning Gateway will be implemented in a three-phase development plan which will spread the costs over multiple funding years. Phase I of the project will define the resources and content to be linked; evaluate and secure a hosting vendor; analyze and catalog the current content; link all content to a single hosting solution; evaluate and secure the software solution to develop the gateway; hire a part-time project coordinator; select project team members for all three phases; evaluate the ability to link all of the current systems and resources; and develop a common branding proposal. Technology requirements, metadata schema for all resources, full implementation including marketing and training, and an overall evaluation of the results will comprise phases two and three.

Audience: NCCCS faculty and students

Cost: \$40,000.00 for 2011-12

Status: Phase I (year one) tasks are underway and will be completed by June 30, 2012.

Educational Resource: e-Text Reader Pilot Project

Description: The e-Text Reader Pilot Project will evaluate four e-Text software applications for e-readers by faculty and students in our System in 2012-13. E-Text materials allow students to access textbooks in a digital form and provide enhanced features which include the ability to highlight, annotate, search, copy, paste, share, and print within the digital textbook environment. Four (4) software applications will be evaluated by eight (8) NCCCS colleges. At the conclusion of the pilot, a written report will be submitted to the Executive Director of eLearning and Technology Systems with the evaluation results and recommendations.

Audience: NCCCS faculty and students

Cost: \$43,000.00 for 2011-12

Status: Evaluation teams in place to evaluate e-text reader software applications and selection of software and e-readers has been completed. Evaluations will begin in Fall 2012.

Educational Resource: Virtual Computing Environment Blade Upgrade

Description: This collaborative project of the NCCCS and NC State University was approved by the State Board for renewal in November 2011 for the 2012 calendar year. This contract amendment expands the VCE capacity through purchase of new blade hardware, power supply, and networking upgrades for the virtual environment, which provides additional computer lab services for the colleges through cloud computing. Cloud computing is a general term for anything that involves delivering hosted services over the Internet.

The blade hardware currently in use is from 2007, and is less efficient than the technology available today. The older blades require more power and support than the proposed IBM HS22 blades. NC State University can purchase blade hardware that will expand the use of VCE production for up to 14 additional community colleges. NC State University will purchase six (6) replacement IBM HS22 blades at the discounted educational consortium base purchase price of \$5,557 per blade. In addition, NC State University will purchase the power supply and networking upgrades necessary for the new blades. The new blades are not simply a one-to-one replacement of the retired blades, as advances in technology now provide approximately 10 times the capacity per blade of the original blades. Many more students will be served with the same number of blades.

Audience: NCCCS faculty and students; NC State University faculty and students

Cost: \$40,000.00

Status: NC State University is ordering six replacement blades for NCCCS use. The State Board of Community Colleges is to allocate funds on April 20, 2012.

Savings: The colleges save money due to fewer licenses needed when accessing asynchronously through the cloud as compared to loading software in computer labs; reduced need for new computer labs (which includes hardware savings as well as classroom utilization); extends the life of computers in the existing labs because less computing power is needed for access (computing power is in the cloud); reduced cost of IT support for computer labs; the ability to offer more asynchronous classes resulting in more FTE. Students save money by not having to purchase the software themselves, they can use older computers (not have to replace as often), and fewer trips to campus to use the computer labs.

Educational Resource: Late Nite Labs - Online Chemistry/Biology Lab Simulations

Description: Late Nite Labs offers chemistry and biology simulations that provide instructors with the capability to develop and customize high quality online chemistry and biology laboratory simulations. This software allows students to complete labs anytime, anywhere.

Audience: NCCCS faculty and students

Cost: \$10,500.00 (perpetual licenses for system-wide biology and chemistry labs)

Status: Online biology and chemistry courses are developed using Late Nite Labs. Chemistry PINS are available to be used in courses from developmental CHM 090 - Chemistry Concepts through advanced courses such as CHM 252 - Organic Chemistry II. Late Nite Labs biology simulations are used in BIO 111 - General Biology I and BIO 112 - General Biology II. These simulations are used for fully online laboratory courses, as well as pre-lab and pre-test scenarios in hybrid and traditional courses.

Savings: Instructor PINS are free and do not expire for all NCCCS instructors. Labs may be created and/or customized. Student PINS are provided at the reduced cost to NCCCS students of \$15.00 per course compared to \$49.99 for all over academic institutions.

Educational Resource: Science Learning Resources, Inc. – Virtual Microscope

Description: The Virtual Microscope provides a cost effective way for students to experience state-of-the-art microscopy by viewing images created with research quality microscopes and camera systems. It imitates the physical functionality of a real microscope and requires students to follow traditional laboratory process and protocol. The high resolution prepared biological specimens imaged for the program illustrate fundamental biological principles. The program can be accessed through the NCLOR and can be downloaded to college computers in classrooms and computer labs.

Audience: NCCCS faculty and students

Cost: \$12,500.00 (maintenance fee and annual license renewal for system-wide use)

Status: This resource is being used in science courses and other related fields of study. NCCCS licenses the Basic Biology collection which includes videos.

Savings: Free professional development faculty workshops and webinars are provided by Science Learning Resources.

Educational Resource: Science Learning Resources, Inc. – V-Scope Explorer: Anatomy and Physiology

Description: The V-Scope Explorer: Anatomy and Physiology series provides a cost effective way for students to experience state-of-the-art microscopy focused on content to support courses in nursing, allied health, and higher level science programs. The program can be accessed through the NCLOR and can be downloaded to college computers in classrooms and computer labs.

Audience: NCCCS faculty and students

Cost: \$12,500 for maintenance and annual license renewal for system-wide use

Status: This resource is being used in upper level science, nursing, and allied health courses.

Savings: Free professional development workshops and webinars for NCCCS faculty are provided by Science Learning Resources on community college campuses.

Educational Resource: Monterey Institute for Technology and Education /National Repository of Online Content (NROC) Learning Objects)

Description: The NROC collection of over 3,600 multi-curriculum learning objects is available to all NCCCS faculty, staff, and students to enhance online, hybrid, and face to face course content. Faculty may access the NROC resources through the NCLOR. This collection includes the subject areas of Algebra, American Government, Biology, Calculus, Developmental Math, Environmental Science, Physics, Psychology, Religion, Statistics, and US History.

Audience: NCCCS faculty and students

Cost: \$19,444.00 (License from 2/15/12 6/14/14; remaining \$19,444 to be paid 2/15/13)

Status: NROC learning objects represent five of the top 13 most viewed items in the NCLOR. The NROC collection contains over 1200 items which include the subject areas of Algebra, American Government, Biology, Calculus, Developmental Math, Environmental Science, Physics, Psychology, Religion, Statistics, and US History.

Savings: NCCCS was able to receive the Southern Regional Education Board (SREB) member discount for this resource. The discount coupled with a multi-year agreement allowed NCCCS to save over \$11,000. The balance of \$19,444 will be paid in year two. The license totaling \$38,888 runs from 2/15/2012 6/14/2014.

Educational Resource: National Library Alliance / Anatomy TV, STAT!Ref®, / Dental Database

Cost: \$37,990.00

Status: There were over 40,000 hits on these National Library Alliance resources from July 1, 2011 to February 15, 2012.

Savings: NCCCS was able to save \$10,000 by licensing all three National Library Alliance resources in a bundled price package.

1) National Library Alliance / Anatomy TV

Description: Online resource of interactive 3D skeleton animations that include bones, ligaments, muscles and vessels throughout the human body. The body parts may be moved and manipulated by a computer mouse. These animations may also be exported from the software as

short movie files. The animations are relevant for students in seated and online courses. It is a valuable enhancement for allied health programs, anatomy and physiology, and other science-related programs.

Audience: NCCCS faculty and students in allied and health related programs

2) National Library Alliance / STAT!Ref®

Description: STAT!Ref® is a database that includes 35+ electronic medical textbooks which are cross-searchable, full-text, top-tier titles in a full range of healthcare disciplines from a wide variety of reputable authors, publishers, and societies and appropriate for multiple curriculum and continuing education courses. This is a system-wide resource.

The community college system educated 54.5% of all of the graduating registered nurses in North Carolina in 2010. By December 31, 2015, all 55 of the ADN-RN programs and 39 LPN programs in NCCCS colleges will need to be accredited by a national nursing accrediting body i.e. the National League for Nursing Accrediting Commission (NLNAC). Sufficient online library resources are part of this accreditation process.

Audience: NCCCS nursing, allied health, and related medical faculty and students

3) National Library Alliance / Dental Database

Description: The Dental Database includes nine (9) electronic medical titles, and additional resources including Stedman's Medical Dictionary; MedCalc 3000, a computerized medical reference and tool set; Pub Med, a service of the National Library of Medicine which includes over 15 million citations for biomedical articles; and the National Guideline Clearinghouse, a public resource for evidence-based clinical practice guidelines.

The East Carolina University Dental School opened in August 2011. Satellite dental clinics are planned for community colleges across the state to support program collaborations with ECU. NCCCS expects the demand for dental hygienists to grow by 37.1% from 2006-2016.

Audience: NCCCS dental related programs of study and allied health faculty and students.

Educational Resource: North Carolina Learning Object Repository (NCLOR) – Pearson/Equella (vendor), Hosted by ITS, NCCCS LOR Hardware

Description: The North Carolina Learning Object Repository (NCLOR) is a system-wide resource which provides the capacity to catalogue and store, search, access, and utilizes digitized learning/teaching content. Learning object repository technology promotes sharing of high quality resources and drastically reduces costs of duplication. The 2+2 funds have been used to establish the North Carolina Learning Object Repository. University and community college faculty, administrators, and support staff collaborated in all phases of planning, Request for Proposal development, evaluation of vendor proposals, implementation, and expansion of the NCLOR. The project includes 2+2 funds to be directed for appropriate project management services required to satisfy Senate Bill 991 documentation and protocol; and contract services to

assure that all testing components of the vendor Request for Proposal and contract development are properly completed and documented.

Audience: Faculty and students of NCCCS, UNC System; private colleges and universities; and Department of Public Instruction (DPI)

Cost: \$209,000.00	(License and Training)
44,752.32	(ITS Hosting)
<u>80,000.00</u>	(ITS Project Manager: budgeted amount per Senate Bill 991)
\$333,752.32	

Status: In May 2012, the State Board of Community Colleges is scheduled to renew the annual contract agreements with (1) Pearson/Equella for software and professional services and (2) the State Information Technology Service (ITS) to provide hosting and project management services.

Educational Resource: UNC Moodle Open Source Collaborative

Description: An open source system allows for the use of the most effective course designs without the limits of a proprietary system. This pilot project consolidates the efforts of NCCCS and UNC institutions as they explore the options of less expensive and open source course management system solutions. The NCCCS staff contracts with UNC General Administration to establish a central facility at which collaboration and experimentation can take place to assess Moodle as an online learning platform, establish high quality faculty training and migration tools, and explore centralized, turn-key solutions for the higher education community in North Carolina.

In 2011, it was determined that the NCCCS would fund two learning management systems; Blackboard and Moodle. Colleges are encouraged to participate in the Moodle Open Source Collaborative for pilot and production phases. In 2011-2012, NCCCS renewed this Open Source Collaborative for one more year in order to assist colleges who are transitioning from Blackboard to Moodle.

Audience: Faculty and students of NCCCS and UNC System universities; NC Virtual Public School faculty and students

Cost: \$102,768.00

Status: The State Board of Community Colleges approved the Open Source Collaborative. NCCCS has contracted with UNC to provide system administration, training, migration tools, hosting services, and Datatel/Moodle integration.

Educational Resource: **CHOICE Reviews Online**

Description: *Choice: Current Reviews for Academic Libraries* is the premier source for reviews of academic books, electronic media, and Internet resources of interest to those in higher education. Choice publishes more than 7,000 reviews each year that librarians, faculty, and key

decision makers use when compiling purchasing lists for collection development and scholarly research. Choice reaches almost every undergraduate college and university library in the United States.

Audience: NCCCS library resource community and system-wide faculty

Cost: \$495.00

Status: Subscription in place through 6/30/2012. NCCCS plans to renew this subscription for 2012-2013 based on positive survey results from community colleges.

Appendix B



Degrees Available from the NCCCS Virtual Learning Community® (VLC)

There are currently 272 curriculum courses in the VLC Library with which colleges in the NCCCS could build programs of study to offer 37 online degrees. Those degrees include:

1. AA/Associate in Arts (A1010A)
2. AA/Business Administration, Accounting, Economics, Finance, & Marketing (A1010B)
3. AA/Business Education and Marketing Education (A1010C)
4. AA/Criminal Justice (A1010D)
5. AA/English (A1010E)
6. AA/Health Education (A1010G)
7. AA/History (A1010H)
8. AA/Nursing (A1010I)
9. AA/Physical Education (A1010J)
10. AA/Political Science (A1010K)
11. AA/Psychology (A1010L)
12. AA/Social Science Secondary Education (A1010M)
13. AA/Sociology (A1010N)
14. AA/Communication (A1010O)
15. AA/Social Work (A1010Q)
16. AA/Elementary Education (A1010R)
17. AA/Special Education (A1010S)
18. AA/Computer Science (A1010T)
19. AA/Liberal Arts (A1010U)
20. AA/Information Systems (1010V)
21. AA/Middle Grades Education (A1011A)
22. AA/General Education (A1030O)
23. AS/Biology/Biology Education (A1040A)
24. AS/ Chemistry/Chemistry Education (A1040B)
25. AS/Mathematics (A1040E)
26. AS/Associate in Science (A1040O)
27. AS/Engineering (A1040D)
28. AAS/Accounting (A25100)
29. AAS/Business Administration (A25120)
30. AAS/ Business Administration/Human Resources Management (A2512C)
31. AAS/Business Administration/International Business (A2512D)
32. AAS/Business Administration/Marketing and Retailing (A2512F)
33. AAS/ Business Administration/E-Commerce (A2512I)
34. AAS/Computer Programming (A25130)
35. AAS/ Office Systems Technology (A25360)
36. AAS/Paralegal Technology (A25380)
37. AAS/Criminal Justice Technology (A55180)

Appendix C



272 Curriculum Courses
49 Continuing Education Courses

<i>Course #</i>	<i>Course Name</i>
Curriculum Courses	<i>Curriculum Courses</i>
ACA 090	Study Skills
ACA 111	College Student Success
ACA 112	Intro. To Distance Learning
ACC 115	College Accounting
ACC 120	Principles of Financial Accounting
ACC 121	Principles of Managerial Accounting
ACC 129	Individual Income Taxes
ACC 130	Business Income Taxes
ACC 140	Payroll Accounting
ACC 150	Accounting Software Applications
ACC 220	Intermediate Accounting I
ACC 225	Cost Accounting
ACC 270	International Accounting
ANT 210	General Anthropology
ART 111	Art Appreciation
ART 114	Art History Survey I
ART 115	Art History Survey II
BIO 111	General Biology I
BIO 112	General Biology II
BIO 120	Introductory Botany
BIO 130	Introductory Zoology
BIO 140	Environmental Biology
BIO 145	Ecology
BIO 165	Anatomy & Physiology I
BIO 166	Anatomy & Physiology II
BIO 168	Anatomy & Physiology I
BIO 169	Anatomy & Physiology II
BIO 175	General Microbiology
BIO 275	Microbiology
BPM 110	Bioprocess Practices
BPR 111	Blueprint Reading

BUS 110	Introduction to Business
BUS 115	Business Law I
BUS 116	Business Law II
BUS 121	Business Math
BUS 135	Principles of Supervision
BUS 137	Principles of Management
BUS 153	Human Resource Management
BUS 217	Employment Law and Regulations
BUS 225	Business Finance
BUS 230	Small Business Management
BUS 234	Training and Development
BUS 238	Integrated Management
BUS 239	Business Applications Seminar
BUS 252	Labor Relations
BUS 256	Recruitment Selection & Personnel Planning
BUS 258	Compensation and Benefits
BUS 259	HRM Applications
BUS 260	Business Communications
CHM 090	Chemistry Concepts
CHM 131	Introduction to Chemistry
CHM 131A	Introduction to Chemistry Lab
CHM 132	Organic & Biochemistry
CHM 135	Survey of Chemistry I and Lab
CHM 151	General Chemistry I
CHM 152	General Chemistry II
CHM 251	Organic Chemistry I
CHM 252	Organic Chemistry II
CIS 070	Fundamentals of Computing
CIS 110	Introduction to Computers
CIS 111	Basic PC Literacy
CIS 113	Computer Basics
CIS 115	Introduction to Programming & Logic
CIS 165	Desktop Publishing I
CJC 111	Introduction to Criminal Justice
CJC 112	Criminology
CJC 113	Juvenile Justice
CJC 121	Law Enforcement Operations
CJC 131	Criminal Law
CJC 132	Court Procedure & Evidence
CJC 141	Corrections
CJC 212	Ethics & Community Relations
CJC 221	Investigative Principles
CJC 231	Constitutional Law
COE 111	Co-op Work Experience I
COM 110	Introduction to Communication
COM 120	Interpersonal Communication
COM 130	Nonverbal Communication
COM 231	Public Speaking
CSC 120	Computing Fundamentals I
CSC 130	Computing Fundamentals II
CSC 134 & 134B	C++ Programming
CSC 139	Visual Basic Programming
CSC 151	JAVA Programming
CSC 220	Machine Implementation of Algorithms
CSC 234	Advanced C++ Programming
CSC 239	Advanced Visual Basic Programming

CSC 289	Programming Capstone Project
CTS 125	Presentation Graphics
CTS 130	Spreadsheet
CTS 220	Advanced Hardware/Software Support
CTS 230	Advanced Spreadsheet
CTS 285	Systems Analysis and Design
DBA 110	Database Concepts
DBA 115	Database Applications
DFT 170	Engineering Graphics
ECM 168	Electronic Business
ECM 210	Introduction to Electronic Commerce
ECM 220	E-Commerce Planning & Implementation
ECO 151	Survey of Economics
ECO 251	Principles of Microeconomics
ECO 252	Principles of Macroeconomics
EDU 118	Teacher Assoc. Principles and Practice
EDU 119	Introduction Early Child Education
EDU 131	Child, Family, and Community
EDU 144	Child Development I
EDU 145	Child Development II
EDU 146	Child Guidance
EDU 151	Creative Activities
EDU 153	Health, Safety, & Nutrition
EDU 186	Reading & Writing Methods
EDU 216	Foundations of Education
EDU 221	Children with Exceptionalities
EDU 222	Learners with Behavior Disorders (formerly EDU 147)
EDU 223	Specific Learning Disabilities (formerly EDU 148)
EDU 235	School Age Development & Program
EDU 247	Sensory and Physical Disabilities
EDU 248	Developmental Delays
EDU 261	Early Childhood Administration I
EDU 262	Early Childhood Administration II
EDU 271	Education Technology
EDU 275	Effective Teacher Training
EDU 280	Language & Literacy Experiences
EDU 285	Internship Experience – School Age
EGR 110	Introduction to Engineering Technology
EGR 220	Engineering Statics
ELC 128	Introduction to PLC
ELN 133	Digital Electronics
EMS 235	EMS Management
ENG 070	Basic Language Skills
ENG 080	Writing Foundations
ENG 090	Composition Strategies
ENG 111	Expository Writing
ENG 112	Argument Based Research
ENG 113	Literature Based Research
ENG 114	Professional Research & Reporting
ENG 131	Introduction to Literature
ENG 231	American Literature I
ENG 232	American Literature II
ENG 233	Major American Writers
ENG 241	British Literature I
ENG 242	British Literature II
ENG 251	Western World Literature I

ENG 261	World Literature I
ENG 262	World Literature II
ENG 273	African-American Literature
FIP 120	Intro to Fire Protection
FIP 124	Fire Prevention & Public Education
FIP 128	Detection & Investigation
FIP 132	Building Construction
FIP 152	Fire Protection Law
FIP 220	Fire Fighting Strategies
GEO 111	World Regional Geography
HEA 110	Personal Health & Wellness
HEA 112	First Aid and CPR
HEA 120	Community Health
HIS 112	World Civilizations II
HIS 121	Western Civilization I
HIS 122	Western Civilization II
HIS 131	American History I
HIS 132	American History II
HIS 222	African-American History I
HIS 223	African-American History II
HIT 112	Health Law & Ethics
HOR 160	Plant Materials I
HSE 110	Introduction to Human Services
HSE 210	Human Services Issues
HUM 110	Technology & Society
HUM 115	Critical Thinking
HUM 122	Southern Culture
HUM 150	American Women's Studies
HUM 160	Introduction to Film
INT 110	International Business
INT 210	International Trade
INT 220	International Economics
INT 230	International Law
ISC 110	Workplace Safety
ISC 112	Industrial Safety
ITN 150	Internet Protocols
ITN 250	Implementing Internet Services
LEX 110	Introduction to Paralegal Study
LEX 120	Legal Research/Writing I
LEX 130	Civil Injuries
LEX 140	Civil Litigation I
LEX 150	Commercial Law I
LEX 210	Real Property I
LEX 240	Family Law
LEX 250	Wills, Estates, & Trusts
LOG 110	Introduction to Logistics
MAT 050	Basic Math Skills
MAT 060	Essential Mathematics
MAT 070	Introductory Algebra
MAT 080	Intermediate Algebra
MAT 090	Accelerated Algebra
MAT 115	Mathematical Models
MAT 140	Survey of Mathematics
MAT 151	Statistics I
MAT 161	College Algebra
MAT 167	Discrete Mathematics

MAT 167A	Discrete Mathematics
MAT 175	Precalculus
MAT 175A	Precalculus Lab
MAT 271	Calculus I
MAT 272	Calculus II
MAT 273	Calculus III
MAT 280	Linear Algebra
MAT 285	Differential Equations
MEC 180	Engineering Materials
MED 118	Medical Law & Ethics
MED 121	Medical Terminology I
MED 122	Medical Terminology II
MKT 120	Principles of Marketing
MKT 122	Visual Merchandising
MKT 123	Fundamentals of Selling
MKT 220	Advertising & Sales Promotion
MKT 221	Consumer Behavior
MKT 223	Customer Satisfaction (OMT154)
MKT 225	Marketing Research
MKT 226	Retail Applications
MKT 230	Public Relations
MNT 111	Maintenance Practices
MUS 110	Music Appreciation
NET 110	Networking Concepts
NOS 110	Operating System Concepts
NOS 130	Windows Single User
NOS 230	Windows Administrator I
NUT 110	Nutrition
OMT 154	Customer Satisfaction
OST 122	Office Computations
OST 134	Text Entry & Formatting
OST 136	Word Processing
OST 137	Office Software Applications
OST 138	Advanced Software Applications
OST 148	Medical Coding, Billing and Insurance
OST 149	Medical Legal Issues
OST 164	Text Editing Applications
OST 184	Records Management
OST 236	Advanced Word/Information Processing
OST 289	Office Systems Management
PED 110	Fit and Well for Life
PHI 210	History of Philosophy
PHI 240	Introduction to Ethics
PHY 110	Conceptual Physics
PHY 151	College Physics I
PHY 152	College Physics II
PHY 251	General Physics I
PHY 252	General Physics II
POL 120	American Government
PSY 150	General Psychology
PSY 241	Developmental Psychology
PSY 281	Abnormal Psychology
PTC 110	Industrial Environment
RED 070	Essential Reading Skills
RED 080	Introduction to College Reading
RED 090	Improved College Reading

REL 110	World Religions
REL 212	Intro to New Testament
SEC 110	Security Concepts
SEC 150	Secure Communications
SEC 160	Secure Administration I
SOC 210	Introduction to Sociology
SOC 213	Sociology of the Family
SOC 220	Social Problems
SOC 225	Social Diversity
SPA 111	Elementary Spanish I
WEB 110	Internet/Web Fundamentals
WEB 115	Web Markup and Scripting
WEB 120	Intro to Internet Multimedia
WEB 140	Web Development Tools
WEB 210	Web Design
WEB 230	Implementing Web Service
WEB 250	Database Driven Websites
Continuing Education Courses	<i>Continuing Education Courses</i>
ANS 3011	Veterinary Assisting
CAT 3100	Computed Tomography
CJC 3100	Law Enforcement: Explosives, Dirty Bombs, & Radiation Response
CJC 3100	Law Enforcement: Weapons of Mass Destruction
CJC 3100	Legal Aspects of Bioterrorism for Law Enforcement
COM 3729	Business Writing Skills
EDU 3000	Lateral Entry – Orientation
EDU 3002	Effective Teacher Training
EGY 2004	Green Purchasing
EGY 3000	Renewable Energy
EMS 3000	Anatomy & Physiology
EMS 3044	Emergency Medical Technician Basic Initial
EMS 3200	Biological Agents of Bioterrorism
EMS 3200	Bioterrorism Awareness for EMS
EMS 3200	Chemical Agents of Bioterrorism
EMS 3200	Decontamination & Transport of Exposed Patients
EMS 3200	Radiological Emergencies for EMS
EPT 3600	Emergency Preparedness – NC Perspective
FIP 3402	Firefighter I (Select Topics)
FIP 3610	Introduction to Fire Pumps
FIP 4728	Introduction to Bioterrorism for Firefighters
FIP 5512	R.T. Hazmat Awareness & Terrorism
FLI 3717	Conversational Spanish for Healthcare Workers
HAZ 3061	Hazardous Materials: Awareness
HEA 3002	Anatomy and Physiology
HEA 3014	Fund. Skills for Substance Abuse Counselors–Core Functions
HEA 3014	Fund. Skills for Substance Abuse Counselors – Ethics
HOS 3060	Meetings and Convention Planning Introduction
HRD 3001	Employability Skills
HSE 3264	Activity Director – Basic
ISC 3036	Principles of Industrial Safety
ISC 3400	Composite Manufacturing
ISC 3500	Tools for Technology
MED 3023	Medical Coding

MED 3025	Medical Billing
MED 3030	Healthcare Billing & Coding
MHT 3100	Mental Health/ Developmental Disabilities Worker
MKT 3438	Customer Service
MNT 3000	NC Manufacturing Certification Level I
MLA 3022	Phlebotomy Education and Clinical Experience
MLS 3808	Leadership
NUR 3235	Medical Terminology
NUR 3236	Medical Transcription
NUR 3240	Nurse Aide Level I
NUR 3241	Nurse Aide Level II
NUR 3279	Gerontology
OSC 3609	Unit Secretary (for hospital or nursing home)
OSH 3300	Bloodborne Pathogens Training
PHM 3250	Pharmacy Technician Training
Professional Development Courses	<i>Professional Development Courses</i>
OCT	Online Course Template (for development of 'VLC Certified Courses')
OCT 2	Online Course Template (for the development of online courses by an individual instructor for their personal use-not 'VLC Certified Courses')
PTOI	Principles and Techniques of Online Instruction

VLC courses are available for download and use, free of charge to NC Community Colleges. Visit our VLC website at <http://vlc.nccommunitycolleges.edu>. Contact Kathy Davis, eLearning Specialist, at davisk@nccommunitycolleges.edu, to obtain a login and password to download a VLC Course.