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**CHANGES NEEDED FOR COMMUNITY COLLEGES TO ADDRESS SHORTAGES OF NURSES,
TEACHERS, AND BIOTECH WORKERS, SAYS CENTER**

Community colleges are the key to dealing with three of the state's critical work force shortages – nurses, teachers, and biotechnology workers, says the N.C. Center for Public Policy Research in a new study released today. The Center says the community colleges are the most cost-effective and fastest way to produce the number of workers needed to meet region-specific demand. The fastest growing occupations in North Carolina include registered nurses, home health aides, truck drivers, nursing aides, home care aides, and elementary school teachers – all occupations for which community colleges provide training.

“North Carolina is short on workers, but the community colleges are not short on solutions,” says Mebane Rash Whitman, attorney and editor of the Center's journal, *North Carolina Insight*. “If given the support they need, they'll give North Carolina's employers the workers to meet the shortages.”

While the community college system may be North Carolina's greatest asset in bridging the work force gaps in our new economy, the Center says several changes are needed for community colleges to reach their full potential. The Center's study makes five recommendations to help community colleges play this crucial role: (1) The state needs to recognize that the community colleges are the best buy and most effective venue for training nurses and teachers and act accordingly. (2) The State Board of Education should remove barriers in its rules for training teachers at community colleges for licensure. (3) The legislature should provide higher funding for higher-cost, high-demand programs leading to high-paying jobs. (4) The legislature needs to increase salaries for community college faculty from 46th in the nation to the national average. (5) To meet work force shortages, more partnerships are needed among the community college system, the UNC system, the business community, private foundations, and the legislature.

North Carolina Has Shortage of Nurses

The community colleges already produce 68 percent of the state's registered nurse (RN) graduates. But North Carolina will face a predicted work force shortage of 9,000 nurses by 2015 and almost 18,000 by 2020. The most serious work force shortages the state faces are in fields related to health care. Nursing, the state's second-fastest growing occupation, tops the list.

Community colleges and public and private universities in the state produced a combined total of 3,380 registered nursing graduates. But the state needs about 2,400 more nursing graduates annually, a 71 percent increase. As the Baby Boom generation ages and as retirees continue to move into North Carolina, this demand for health care will continue to rise.

North Carolina's community colleges have shown that they can produce the high-quality nurses needed with passing rates on licensure exams higher than the national and state averages. The community colleges' passing rates for all associate's degree in nursing (ADN) licensures was 89 percent (88 percent nationally), and their passing rate for all practical nursing licensures (LPN) was 95 percent (88 percent nationally). Licensure passing rates for bachelor's of science in nursing programs in the UNC system are 89 percent.

While enrollment in nursing programs is increasing, there also is a shortage of nursing faculty – nurses teaching nursing. Recently, North Carolina colleges were forced to deny admission to 6,588 qualified applicants for entry-level programs for registered nurses (RNs). Linda Lacey, associate director of research for the N.C. Center for Nursing, cites “a lack of faculty, classroom space, and clinical placements for these students.”

Another reason for the faculty shortage is the inability of community colleges to offer competitive salaries. The average nine-month salary for instructors for the associate's degree in nursing programs is \$47,303. However, the average salary for an RN working in a hospital, clinic, or doctor's office in North Carolina was \$61,347.

NC Also Has Shortage of Public School Teachers

Paralleling the shortage of nurses is a shortage of teachers in North Carolina's public schools. The biggest gaps are the need for teachers of math, science, special education, and second languages. The Center's Whitman says, “We've got three problems: the student population is increasing, we aren't retaining enough teachers, and we can't produce enough teachers.”

Between 2007 and 2020, the school-age population is expected to increase from 1.58 million to 1.85 million. The public schools must replace about 10,000 teachers every year due to resignation and retirement. But the public universities in the UNC System only produce 3,969 teacher education graduates. North Carolina needs about 6,500 more new graduates in teacher education each year in order to address the shortages, which are occurring all over the state and in every discipline.

The Center's report praises the UNC system for increasing its cooperation with the community colleges on the issue of work force shortages, and specifically for realizing that community colleges have a larger role to play in teacher training. There is more work to be done, however. For instance, the comprehensive articulation, or transfer, agreement between the UNC system and the community college system does not cover the associate's degree in applied science (AAS), due in part to differences in required faculty credentials. Individual institutions within the UNC system do have specific agreements in certain fields with individual community colleges, but the Center says the applied science area needs more attention from both systems before students can transfer easily.

Former Community College System President Martin Lancaster says research shows that 80 percent of teachers end up teaching within 50 miles of where they obtain their degree. Virtually every North Carolinian lives within 50 miles of one of the state's 58 community colleges, so these colleges are well positioned to produce teachers and keep them in the area's public schools.

Biotechnology Faces Significant Work Force Shortages

The field of biotechnology also faces significant work force shortages. Biotechnology has four primary sectors: agricultural feedstock and chemicals, drugs and pharmaceuticals, medical devices and equipment, and

research testing and medical laboratories. In North Carolina, biotechnology is part of many areas of the economy – from vintners developing new breeds of grapes to pharmaceutical companies developing the latest genetically engineered drugs. State government leaders were early pioneers in seeing the potential of biotechnology to be a major employer when they created the North Carolina Biotechnology Center in 1984. It was the world's first government-sponsored organization dedicated to developing the biotechnology industry.

North Carolina is the only state in the nation to rank in the top 10 for job growth in all biotechnology sectors. The state now ranks third in the nation in the number of biotechnology companies, with 450 companies employing 55,000 people. However, the state has only recently begun supporting the development of the biotechnology work force. And, the demand for biotechnicians is more than double the current community college output.

Estimates of the number of workers needed in the scientific and technical fields to meet shortages in the biotechnology sector range from 2,270 to 4,000 per year. But in 2006-07, the number of people who completed related life science programs totaled just 1,780.

Other Work Force Shortages

Though not as critical as the shortages in health care, teaching, or biotechnology, North Carolina also faces labor shortages in other sectors of the economy, including industrial maintenance workers, machinists, truck drivers, and skilled trades such as carpenters. Nationwide, 100,000 more truck drivers will be needed by 2010.

Center Recommendations on Addressing Work Force Shortages

North Carolina's economy is shifting from a three-legged stool of manufacturing textiles, tobacco, and furniture. It is becoming a service-based economy that looks more like a ladder missing the rungs of the traditional mid-level jobs. In the new economy, access to community college education and training is key to the state's ability to address its work force shortages. The Center's study offers five recommendations to improve the community colleges' ability to address work force shortages:

(1) The N.C. General Assembly, the State Board of Education, and the N.C. Department of Public Instruction should adopt policies that establish the N.C. Community College System as the primary venue through which to train the number of nurses and teachers the state needs. The Center says North Carolina must be strategic in trying to meet work force shortages in nursing and teaching. The Center says there are three reasons to shift the leading role to community colleges – their greater affordability, their greater ability to produce a larger number of program completers and graduates, and their greater ability to meet region-specific demands in the number of graduates produced.

(2) The State Board of Education, Community College System, and Department of Public Instruction should work together to establish policies that address the shortage of public school teachers, including making it easier for community colleges to train teacher education students for licensure. The Center says two policy options could accomplish this goal:

(a) The State Board of Education should amend current policies to accept teacher education licensure credits from community colleges in all nine areas of teaching competence. Currently, the Board accepts community college licensure credits in six of the nine areas of teaching competence – human growth and development, educational and instructional technology, learning theory and styles, school policies and procedures, home school and community collaborations, and classroom management. However, the State Board of Education only accepts licensure credit for the remaining three areas of teaching competence – reading, special education, and instructional core content – from four-year colleges and universities. “We have the capacity to train hundreds of teachers every year through this program,” says Peggy Teague, vice president of academic services for Wayne Community College in Goldsboro. “But it would be much easier if we could teach all the competencies. Then we could offer a complete package.”

(b) The State Board of Education and N.C. Community College System should work together to ensure that all 58 community college campuses take advantage of the State Board of Education's new policy of permitting community colleges, in conjunction with a university, to participate in lateral entry teaching programs that lead to licensure. State Board of Education senior policy analyst Kathy Sullivan says that as of April 2008, no applications for lateral entry teaching programs have been received and only one is expected in the near future. In order to raise community colleges' awareness of this opportunity, the Center says the Board should encourage community college participation in lateral entry teaching programs by developing and promulgating rules under which community colleges can apply. In turn, the Center says the N.C. Community College System should encourage all of its 58 colleges to apply.

(3) The N.C. General Assembly should provide differentiated funding for selected community college programs, including more funding for higher-cost programs in areas of increased state need such as allied health. The current funding formula fails to address work force shortages because funding per full-time equivalent students (FTEs) is determined by the previous year's enrollment and is the same for all programs regardless of cost. For example, certain high-demand fields such as health science programs cost \$1,520 more per FTE student than cosmetology, yet all programs currently receive the same funding per student, regardless of cost. This hurts the state's ability to get students into areas where there are large work force shortages. The State Board of Community Colleges has identified the establishment of differentiated funding as a priority, and the Center endorses this concept.

(4) The General Assembly should adopt a policy of moving salaries for community college faculty to the national average. The average full-time faculty member in the state's 16 public universities is paid about \$81,000, ranking North Carolina 13th in the nation. The average public school teacher is paid about \$46,000, ranking the state 27th. But, the average full-time faculty member in the community colleges earns about \$41,000, ranking North Carolina 46th in the nation. The Center says community colleges' pay for faculty must improve, or the state's response to work force shortages and economic transformations will be as below average as the faculty pay.

(5) The N.C. Community College System should use the BioNetwork's strategy of forming innovative, strategic, and diverse partnerships with industry, private grantmaking foundations, the UNC System, and the General Assembly as a blueprint for achieving similar success in the fields of allied health, teacher education, and other fields of strategic importance. The System also should identify its top four fields of strategic importance for the General Assembly and the public. BioNetwork is a statewide network of education and training programs designed by industries and the community college system to address the biotechnology work force shortage. To date, grants have been provided through the BioNetwork to develop courses and purchase equipment, and 53 of 58 colleges are being served, covering 93 of 100 counties. Just as the BioNetwork has taken forceful strides in satisfying work force demands in the field of biotechnology, the Center says the occupations of nursing, teaching, and other fields of strategic importance could benefit from similar partnership strategies. The BioNetwork is so effective because it is precisely that – a “network” of various partnerships. The Center says the N.C. Community College System should try to emulate the BioNetwork example by diversifying partnerships in allied health, nursing, teaching, and other fields. This diversification strategy could prove particularly effective in health care if stronger partnerships with UNC were linked with partnerships with the health industry.

The N.C. Center for Public Policy Research is an independent, nonpartisan, nonprofit research corporation created in 1977 to evaluate state government programs and to study public policy issues facing North Carolina. The Center is supported in part by a grant from the Z. Smith Reynolds Foundation in Winston-Salem, with additional support from nine other private foundations, 120 corporate contributors, and about 600 individual and organizational members. The Center recognizes and thanks the N.C. GlaxoSmithKline Foundation in Research Triangle Park and The Cannon Foundation in Concord for their grants in support of this research on community colleges in North Carolina. The Center publishes a journal called *North Carolina*

Insight, a citizens' guide to the legislature, and in-depth research reports such as a recent study of governance of the state's public universities. The Center also has conducted studies of ways to prevent high school dropouts and ways to reduce domestic violence, as well as an evaluation of charter schools. Upcoming studies will examine state water policy, mental health reform, and key issues facing the state's aging population.

The Center's 230-page study of the future of community colleges in North Carolina is available for \$24. To order, write the Center at P.O. Box 430, Raleigh, NC 27602, call (919) 832-2839, fax (919) 832-2847, or order by email from tbromley@nccppr.org.

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**Table 1. Fastest Growing Occupations in North Carolina
by Number of Job Openings, 2004–14**

Occupation	Total Job Openings	Total Percentage Change
1. Retail Salespersons	29,470	+24.03
2. Registered Nurses	26,060	36.73
3. Combined Food Preparation and Serving Workers	17,150	20.39
4. Home Health Aides	16,680	48.33
5. Waiters and Waitresses	16,420	25.47
6. Truck Drivers, Heavy and Tractor-Trailer	15,770	27.10
7. Customer Service Representatives	15,440	25.85
8. Janitors and Cleaners, Except Maids and Housekeeping	15,060	29.15
9. Nursing Aides, Orderlies, and Attendants	13,150	27.78
10. General and Operations Managers	11,090	20.22
11. Cashiers	10,580	9.98
12. Laborers and Freight, Stock and Material Movers	10,510	13.67
13. Personal and Home Care Aides	9,300	49.47
14. Landscaping and Groundskeeping Workers	9,280	30.01
15. Team Assemblers	9,220	15.23
16. Teacher Assistants	9,150	26.70
17. Executive Secretaries and Administrative Assistants	8,660	16.83
18. Elementary School Teachers, Excluding Special Education	8,520	24.07
19. Maintenance and Repair Workers	7,550	15.66
20. Maids and Housekeeping Cleaners	7,350	20.92

Note: **Bold** indicates those occupations for which the N.C. Community College System provides training.

Source: *North Carolina Occupational Trends, Projections 2004–2014*, N.C. Employment Security Commission, Raleigh, N.C. Accessed Oct. 1, 2007, on the Internet at <http://eslmi23.esc.state.nc.us/projections/index.asp?section=2&periodID=07>

**Table 7. Top 20 Teacher Shortage Areas
in North Carolina, 2005–06**

	Teacher Shortage Area	Number of Local Education Agencies Indicating Need (out of 115 LEAs)
1.	High School Math	97
2.	Special Education: General Curriculum	77
3.	High School Science	72
4.	Middle School Math	62
5.	Middle School Science	49
(tie)	Special Education: Adapted Curriculum	49
7.	Cross Categorical	34
8.	Behavioral/Emotional Disabilities	32
9.	Learning Disabilities	29
10.	Second Languages	28
11.	Mental Disabilities	20
12.	Speech Language Pathologist	14
(tie)	English as a Second Language*	14
(tie)	Middle School Language Arts	14
15.	High School Family/Consumer Sciences	12
16.	Elementary Education	11
(tie)	High School English	11
18.	Middle School Social Studies	8
(tie)	Severely/Profoundly Disabled	8
20.	Counselor	7

*Spanish was the second language most often identified.

Note: Numbers above include only those areas identified by five or more LEAs.

Source: *System Level Turnover Report*, N.C. Department of Public Instruction, Oct. 2006, pp. 3–4. On the Internet at www.ncpublicschools.org/docs/recruitment/surveys/turnover/2005-06turnoverreport.pdf

**Table 5. Teacher Education Graduates and Completers,
University of North Carolina, 2005–06**

	Campus	Traditional Graduates	Alternative Completers	Total
1.	Appalachian State University	482	46	528
2.	East Carolina University	427	323	750
3.	Elizabeth City State University	26	16	42
4.	Fayetteville State University	94	39	133
5.	NC A&T State University	34	42	76
6.	NC Central University	46	119	165
7.	NC State University	155	114	269
8.	UNC-Asheville	41	36	77
9.	UNC-Chapel Hill	83	103	186
10.	UNC-Charlotte	250	262	512
11.	UNC-Greensboro	376	94	470
12.	UNC-Pembroke	87	58	145
13.	UNC-Wilmington	255	103	358
14.	Western Carolina University	150	79	229
15.	Winston-Salem State University	21	8	29
	UNC Total	2,527	1,442	3,969

Note:

Traditional graduates include both students who complete a four-year bachelor's degree in education at a senior college or university and those who complete the 2+2 programs, which allows students seeking a bachelor's degree or licensure in education to take the first two years of coursework at a participating community college and then transfer to a four-year college.

Alternative completers include lateral entry students, or individuals with a bachelor's degree in an area other than education hired by a North Carolina public school prior to meeting state licensure requirements who are granted three years upon being hired to complete all course requirements.

Source: Report on UNC Production of Teacher Education Graduates and Alternative Licensure Completers 2005–2006, The University of North Carolina, Raleigh, N.C., Mar. 2007, p. 4.