

NC STATE UNIVERSITY

North Carolina State University Pre –College Programs



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Table of Contents

Algebra Camp	pg. 3
Biology Outreach Program	pg. 4
Design Camp	pg. 6
Engineering on the Road	pg. 7
Expanding your Horizons	pg. 9
Girls on Track (Go T)	pg. 11
Imhotep Academy	pg. 12
Kyran Anderson Academy	pg. 14
Middle School Engineering Camp	pg. 16
NC State's Saturday Program for (SPACE) Academic and Cultural Education	pg. 17
NC State University Educational Talent Search	pg. 20
NC State University Upward Bound	pg. 22
North Carolina Math & Science Education Network (NC-MSEN)	pg. 24
Performing Inquiry Based Explorations	pg. 28
Photonic Xplorers	pg. 29
Recognizing Accelerated Mathematics Potential in Underrepresented People (RAMP-UP)	pg. 31
Summer Textiles Exploration Program (STEP)	pg. 33
WoodLINKS	pg. 34
Additional N.C. State Programs	pgs. 35-42

Algebra Program

Name of Director: Dr. David G. Haase, Director of the Science House
Dr. Joyce Hilliard-Clark, Imhotep Academy Program Coordinator
Ms. Patricia Marion, Imhotep Academy Program Assistant

Contact Information:

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The Science House
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www.science-house.org

The Algebra program was started at NC State in June of 2002.

Algebra Program's mission: The Algebra Program is a powerful tool for making sense of the world by solving problems, modeling everyday numerical scenarios and can be learned by all students.

- Build skills and confidence in algebraic thinking and number reasoning.
- Discover the importance of mathematics and the connection to career choices.
- Solve algebra problems using games, math manipulative, computers and calculators.
- Develop a positive attitude for mathematics and see application through tours of various colleges on NC State's campus

Algebra Camp Objectives:

- Use variables and inequalities
- Analyze real world data using histograms
- Simplify an expression using order of operations
- Find the absolute value of a number
- Add, subtract, multiply and divide integers
- Solve problems involving negative numbers
- Write variable expressions
- Apply variable expression in problem solving

Algebra camp is for students who have completed the 6th grade and have not yet had Algebra in school.

The racial makeup of Algebra camp students is 70% African-American, 5% Asian, 17% Caucasian, and 8% Other.

The Algebra Camp has served one hundred fifty students. The Algebra Camp is a summer program and is limited to serving only 36 students each summer.

Biology Outreach Programs

Name of Director and Staff:

Dr. Charles Lytle, Coordinator

Ms. Judy Day

Ms. Grace Martin

Ms. Brenda Evans

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Raleigh, NC 27612

The Biology Outreach Program officially started in 1994 as a continuation of programs in the Biological Sciences Program of the College of Agriculture and Life Sciences started in 1977.

Biology Outreach Program mission: To develop a comprehensive pre-college outreach program to link more effectively the academic and research programs of the College of Agriculture and Life Sciences to the instructional programs in the public and private schools of North Carolina and to increase the recognition of the college and university as leading contributors to the improvement of science education in the state. The principal focus of the program will be on working with schools in rural and economically disadvantaged areas of the state with grades 6-12,

Some of the primary learning experiences offered to the students include:

Professional Development Opportunities for pre-college teachers,

Summer Environmental Camp for Middle School Students,

Summer programs for science teachers, supporting student research projects, sponsoring Saturday Science Seminars for pre-college students, leadership training for teachers and other school officials, special classes for science teachers.

Students in the Biology Outreach Program are between 13-18 years of age.

Biology Outreach Program also trains K-12 teachers to impact children from 5-18.

The racial makeup of students Biology Outreach Program is Caucasian, African-American, Hispanic, Oriental.

Biology Outreach Program has served approximately 2500 teachers trained since 1977, most of them secondary teachers who teach an average of 150 students/day, thus have impacted 375,000 students during that period. In addition, Biology Outreach Program has served about 850 students directly. This year the program trained 1015 teachers and

other school leaders. Approximately 677 of these were K-12 teachers who teach an average of 30 students each, thus has impacted 20,310 K-12 students via their teachers. Biology Outreach Program also had 35 students attend one of our programs this year.

Presently, the Biology Outreach Program has trained 1015 teachers and other school leaders. Approximately 677 of these were K-12 teachers who teach an average of 30 students each, thus we impacted 20,310 K-12 students via their teachers. We also had 35 students attend one of our programs this year.

Design Camp

Director: Marva C. Motley, Asst. Dean
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Design Camp started at NC State University in 1983 approximately (under my direction since 1995. No historical data available prior to 1995.

Design Camp mission: To expose underrepresented high school students to Design.

Design Camp's primary learning experiences include high impact overnight camp, intense in nature, hands on programs designed to push creative limits and expose students to all aspects of design (architecture, landscape architecture, graphic design, art & design and industrial design). Students work in teams of 15 to 20 for five days to create design projects.

Day Camp was added three years ago through grant support from Provost Office, has since been added as a permanent offering.

One week M-F intense day camp for rising freshmen and sophomores.
 RESIDENTIAL CAMP: Rising juniors and seniors (2 weeks)
 DAY CAMP: Rising freshmen and sophomores (one week)
 PROGRAMS HAVE SERVED close to 1,500 since 1995 (160 students each summer from 1995 until 2001 PLUS, 200 Day Campers from 2002-2004).

Racial Make Up - ranged from 5% in 1995 to 30% in 2004
 Approximately 30% apply to Design
 Approximately 25 to 30% attend Design as freshmen or transfer students
 Approximately 20% will graduate
 Approximately 85% or more will attend college somewhere. Most campers are high achievers and are recommended by art teachers or guidance counselors.

Approximately 52% of minority campers will attend NC State; others generally will attend HBCU's that offer design (Hampton or A&T).

Past participants enrolled at NC State now include: Maxwell Dorsey, Kim Tran, Dennis Yancey, Samantha Everette, Ashleigh Hall, Brandon Taylor. Crystal Deloatch – (transferred).

Students who participate in Design Camp who graduated from NC State and continue to serve the program: James Stacy Utley, Phillip Hutchinson, Antonio Hinson, Amy Simpson (and more). Graduates often come back to serve as role models and make presentations for Design Camps.

Engineering on the Road

Name of Director: Dr. Laura Bottomley
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Web Address: www.engr.ncsu.edu/k12outreach

The K-12 Outreach Program in the College of Engineering began in 1999 with an effort to increase the enrollment of women and minorities in the College. It started in high schools, and then quickly expanded to middle school and then elementary school, as we realized that girls in high school have already decided which career path to follow (partly because the State of North Carolina required that a pathway be established from the beginning of the 9th grade year).

Middle school girls have already decided whether they like and/or are good at science and math. We hypothesized and then did research to support that girls in around the 4th or 5th grade are making decisions and developing affinities that will eventually affect whether they pursue science and math careers. In addition to these factors, we realized that ALL children were not receiving enough high quality science instruction and that mathematics instruction was not reaching a sufficiently diverse constituency in the K-12 years. All of these realizations led to the creating of the Engineering Outreach Program in the College of Engineering.

Our middle school engineering camp, the Engineering on the Road Program, the RAMP-UP program and other things are all part of the Engineering Outreach Program. We are presently seeking funding for an elementary school engineering camp this summer. Also, the program director participates in planning the Expanding Your Horizons conference, sits on a State board for the revision of technology education in North Carolina, is on the advisory board for Project Lead the Way in North Carolina, serves as chair-elect for the K-12 division of the American Society of Engineering Educators and several other things. Kay Leager, in our office, coordinates a large number of summer camps for high school students.

In addition, a great deal of K-12 outreach takes place in our individual departments like nuclear, biological, biomedical, materials science, chemical, etc. I track (to the extent that I can) activities in the various departments as well. Our programs have been recognized with the 2000 Presidential Award for Excellence for Mentoring in Science, Engineering and Mathematics (in combination with our Women in Engineering and Minorities in Engineering Programs). In addition, the results of our first NSF grant for science education will be featured soon on the NSF main web page.

Engineering on the Road started at NC State in 1999.

Engineering on the Road's mission: To inform more K-12 students, their teachers, counselors, and parents about what the fields of engineering

really are and to make sure that they know how to prepare and pursue study in engineering

Engineering on the Road offers customized visits to schools (or by groups to our campus) that include, variously, large group demonstration/presentations, career fair booth maintenance, customized classroom activities, etc. More specific examples available on request!

Engineering on the Road serves kids in grades K-12.

The racial makeup of participants varies. Where Engineering on the Road has impact, it attempts to speak to as diverse a group in race and gender as possible.

The Engineering on the Road program serves between 2000 and 5000 students each year since its inception. So far this school year, the program has served 2000 students. We do not have the ability to track specific students. We did a survey of our freshmen students about three years ago and about 10% reported having participated in an outreach program before coming to NC State.

Expanding Your Horizons (EYH) Conference

Name of Director and Staff– Dr. David G. Haase, Director of the Science House
 Dr. Joyce Hilliard-Clark, Steering Committee Chair
 Mrs. Kimberly Smalls-McDougal, EYH Coordinator

Contact Information:
 NC State University
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www.science-house.org

The Expanding Your Horizons (EYH) program was started at NC State in March of 1995. EYH is a national program celebrating 40 years of success with 13 years of serving young ladies in North Carolina. NC State University has hosted the EYH Conference for the last 10 years. EYH is supported by grants from the NSF Center for Environmentally Responsible Solvents and Processes, the Howard Hughes Medical Institute Pre-college Program, The Science House and the Office of the Provost. Several other organizations provide in-kind support and have donated funds.

Expanding Your Horizons mission: EYH mission is to promote the continuing advancement in mathematics and science education of all people, with a particular emphasis on the needs of women and girls. The goal of the Math/Science Network is to increase the participation, retention, and advancement of girls and women in mathematics, science, and technology. The Math/Science Network is a non-profit membership organization of educators, scientists, mathematicians, parents, community leaders, and government and corporate representative.

EYH's primary learning experiences offered to students are:

- Experience the fun of math and science in hands-on workshops led by women scientists, mathematicians, and engineers
- Learn about science and math-based careers
- Find out about the education required and how “hard” it *really* was...or wasn't
- Obtain real information about the personal lives of women in science, math, engineering, technology, and business and the paths to these careers

EYH participants are seventh grade female students.

The racial makeup of EYH students varies yearly (From the 2004 conference): 51.6% African-American, 38% European American, 4.1% Asian, 3.3% Hispanic, 0.4% Native American, and 2.6% other. 100% of the participants are female.

There have been approximately 3,850 seventh grade females in attendance at the EYH Conferences. Approximately 450 female students have registered for the 2005 conference.

Of the 58 schools participating in the 2004 conference, 65% represented rural communities. Student participants reported that the experience was meaningful to them:

- 81.7% of participants indicated they had learned of new careers as a result of participating in the conference
- 77% were more interested in careers in math, science, or both than they were before the conference
- 71% were interested in taking more math and/or science classes than they were before the conference
- 96% of the girls would encourage a friend to attend an EYH Conference.

Of the teachers who participated:

100% of them agreed that the EYH Conference encourages females to study math and science, and 97.7% of the teachers agreed that the conference encouraged female students to pursue careers in math, science and /or engineering.

Girls on Track (GoT)

Name of Director: Drs. Sarah Berenson and Glenda Carter

Contact Information: 515-2013

Web Address: <http://ontrack.ncsu.edu> and <http://www.ncsu.edu/crmse>

Go T was started in 1998 with NSF Funding.

Go T's mission: Keep high achieving girls on fast math track to high school calculus

Some of the primary learning experiences offered to the students include mathematics, science, computer technology, careers

Go T's participants are between the ages of 11-13.

Go T participants consists of 20% African American, 20% Asian American, 60% Caucasian.

The Go T program serves between 250-300 girls

Go T is presently conducting a longitudinal study of as many of these girls as they can find. In some cases, they have 6 years of data on these students.

At this time, there is no way of knowing how many of these students have graduated from NC State University. The first cohort has just entered college. 95% of these participants go to colleges other than NC State

Imhotep Academy

Name of Director: Dr. David G. Haase, Director of the Science House
Dr. Joyce Hilliard-Clark, Imhotep Academy Program Coordinator
Ms. Patricia Marion, Imhotep Academy Program Assistant

Contact Information:
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Imhotep Academy was started at NC State in October of 1992.

Imhotep Academy's mission: The mission of Imhotep Academy is to increase student awareness and enthusiasm for learning mathematics and science using hands-on learning activities and educational technologies in mathematics and sciences. Therefore, the program is designed to guide middle school students toward high school college preparatory courses in science and mathematics using the NC Standard Course of Study as a framework.

- Expose students to and promote enthusiasm for mathematics, science and technology
- Strengthen academic abilities and prepare students for matriculation in the university.
- Provide multicultural experiences and academic enrichment activities.
- Teach about contributions of scientists and inventors of under-represented groups.
- Build self-confidence and self-esteem.

Imhotep Academy students participate in: Chemistry, Computer Technology and Physics laboratories including Mathematics and Statistics Classes, Marine, Earth and Atmospheric Sciences, Communications, Test-taking skills, Research projects, Educational field trips, Cultural awareness experiences, and World Wide Web / Internet Exploration. Theme-based instruction focus on careers in area of Engineering, Forensic Science, Flight, Aeronautics, Astronomy, Sound, Biotechnology, Energy, Earth, Marine and Environmental Sciences to our students' attention.

The students who participate in Imhotep Academy are sixth through the eighth graders. The Summer Academy is for 6th and 7th graders. 8th grade students may participate only if they have attended previous Imhotep Academies.

The ethnic make of the Imhotep Academy students varies from session to session because students are registered on a first come first serve basis. Generally it is 64% African-American, 3% Hispanic, 2% Native American, 8% Asian/Pacific, 20% Caucasian, and 3% described themselves as other. The students are 55% Female, and 45% Male.

Since 1998, Imhotep has enrolled over seven hundred middle school students from across the state of North Carolina.

Fifty-three students are currently enrolled from Wake, Warren, Franklin, Durham, Orange, Guilford, Johnston, Wayne and Lenoir Counties.

Sarah Dickie, Jamella Murray and Mariah Thorpe are names of students who participated in Imhotep Academy and are presently enrolled at NC State. Chris Farrington was an Imhotep participant who graduated from NC State.

In a recent survey of 100 students whose birthdays were from 1984-86 and who had graduated from Imhotep Academy program, we were only able to reach 50 students. Forty of the 50 students contacted were in college 4 East Carolina University, 1 Elon University, 1 Meredith College, 1 MIT, 1 Notre Dame, 10 North Carolina A&T State University, 2 North Carolina Central University, 3 NC State, 9 UNC Chapel Hill, 1 UNC Greensboro, 1 UNC Wilmington, 1 Vance-Granville Community College, 1 Virginia Tech, 1Xavier, 1Wake Forest, 1Wake Tech Community College 1William & Mary College. Nine students were high school seniors and were planning to go to college and one person hung-up on the caller.

The other 50 students were not reached due to 18 wrong numbers or telephones no longer being in service; 22 no answers or not home and 10 messages were left on answering machines. Four called back with their responses.

Kyran Anderson Academy

Name of Director: Dr. Wandra P. Hill

Contact Information: NCSU Box 8201, Raleigh, 27695

Web Address: <http://www.pams.ncsu.edu/kyranandersonacademy/registration.htm>

The Kyran Anderson Academy started at NC State during the summer of 1998.

Kyran Anderson Academy mission: The primary goals of the Kyran Anderson Academy Summer Program are to expose the students to health education/cutting edge curriculum such as forensic science and marine science, diversity workshops, and innovative modules in mathematics and physical sciences. Also, a primary goal of the summer program is to reach elementary and middle school students to enrich their knowledge in these academic subjects. As students are exposed to these areas we believe that their self-confidence will be increased and their desire to do well in science and mathematics will increase.

The Summer 2004 objectives were as follows:

- (1) To show and motivate underrepresented students that mathematics and science are fun;
- (2) To increase the number of underrepresented students who are electing to take higher level mathematics and science courses;
- (3) To increase awareness about forensic science and marine science;
- (4) To increase the knowledge about physical and mathematical sciences careers;
- (5) To improve race relations with Hispanic, African American, and White American children;
- (6) To increase the awareness of health and physical and mathematical sciences careers with children and parents;
- (7) To provide opportunities (via fieldtrips) for students to hear presentations and interact with forensic science professionals and marine "scientists" whereby they see the profession "in practice."

Some of the primary learning experiences offered to Kyran Anderson Academy students include:

Math and Science classes taught by a variety of experts that include Wake County Public School teachers, NCSU professors, NCSU Graduate students, and a former Wake County principal and a Durham Principal [students participate in high level science and math classes/lab such as physics, chemistry, meteorology, algebra, consumer math, geology, oceanography, pre-algebra, and forensic science.]

Specialty science and math subject-matter led by guest speakers from the Triangle and surrounding areas. [Students have sat in sessions led by Mr. Greg Fishel of WRAL, Dr. Christine Darden of NASA Langley Research Center, Mr. John Clark or WTVD, Dr.

Benjamin Carson of Johns-Hopkins Medical Center, Dr. George Adams of Merck Pharmaceutical, Mr. Hamilton Morales of Enterprise Rent A Car (math); Dr. Marye Anne Fox-former NCSU Chancellor, Ms. Nettie Washington Douglass-a direct descendant of Abolitionist Frederick Douglass, Ms. Elizabeth Gardner of WRAL, Ms. Emily Byrd of WDNC-Channel 9, Sheriff Donnie Harrison, Mr. Tim Swinson of State Employees Credit Union, and Ms. Sheleathe Quick of County/City Bureau of Identification.

Field Trips during the summer session that reinforce the math and science theme [students have visited the Discovery Place in Charlotte, Virginia Air and Space Museum, Johns Hopkins Medical Center-Baltimore, NC Museum of Science, WRAL Weather Station, County/City Bureau of Identification, NCSU Colleges of Design, PAMS, and Natural Resources, NCSU NASA lab with Dr. Jeff Xu, NC Credit Union, and Food Lion.

Kyran Anderson Academy participants are in grades 3-6 (approximate age 8 to 13) and Junior/Senior Counselors in grades 8-college junior (ages 13-20 approx.).

The racial makeup of Kyran Anderson Academy students are: 94% African American; 5% Hispanic; 1% Caucasian

The Kyran Anderson Academy program has served 853 students and 69 junior/senior counselors through September 2004

Presently, the number of eligible students [who are in grades 3-6] currently on the mailing list equal approximately 150 are involved with the Kyran Anderson Academy.

Six of the students who were in the first Kyran Anderson Academy session during summer 1998 are high school seniors during this 2004-05 academic year and are therefore not enrolled in college as of January, 2005. However, 2 high school students who served as junior/senior counselors are enrolled in colleges across North Carolina and Washington DC.

Junior/Senior counselors who worked with the program while they were in high school and who are currently at NCSU are: Ms. Ashleigh Hall, Mr. Lawrence Dickens,

At this time, none of the Kyran Anderson Academy graduated from NC State University. Junior/Senior counselors who worked with the program while they were in high and who are currently at colleges other than NCSU number 4. The first class of six will graduate from high school this year. So, we don't have any statistics on what colleges they will attend.

Middle School Engineering Camp

Name of Director: Dr. Laura Bottomley

Lead teacher Barbara Pearman (Centennial Middle School)

Contact Information: 118 Page Hall, Box 7904
515-2315

Email Address: laurab@eos.ncsu.edu

Web Address: www.engr.ncsu.edu/k12outreach

The Middle School Engineering Camp was started in 2001 at NC State

Middle School Engineering Camp's mission: To introduce middle school kids to the fun and creativity of engineering

Primary learning experiences include a week long day camp of activities, which includes a series of competitions on Friday to which parents are invited.

Students in grades 6-9 participate in the Middle School Engineering Camp.

Approximately 30% of the attendees have been African American each year, and between 40 and 50% have been female. Sixty kids attend the camp each year, for a total of 240 so far.

The Middle School Engineering Camp will accept 60 kids again this summer.

None of these students have enrolled at NC State yet; none have been old enough. I am currently advising several who are now in high school and hoping to attend NC State.

NC State's Colonel 'Guy' Bluford Saturday Program for Academic and Cultural Education (SPACE)

BACKGROUND

The NCSU Colonel 'Guy' Bluford Saturday Program for Academic and Cultural Education (**SPACE**) was inaugurated spring of 1993 at the recommendation of the African American Community Advisory Council following the 1992 African American Educational Summit held at the NCSU McKimmon Center. **SPACE**, a program of the Office for Diversity and African-American Affairs, a unit of the Office of the Provost, strives to boost the academic performance of underachieving and under-represented middle school students, particularly African-American males. Upon Col. Bluford's recognition as the 1993 NC State University Brotherhood honoree, he agreed to lend his name to this program. The objectives of **SPACE** are

- to improve students' academic skills;
- to build leadership skills;
- to challenge and inspire students to excel in their school and community; and**
- to promote the development of a strong, positive self-image.

The long-term **SPACE** goal is to increase the number and quality of diverse high school graduates in North Carolina and to increase the diversity of the NCSU admissions applicant pool, particularly those from under-represented groups in the sciences, engineering, teaching, mathematics, and technology. The Saturday Program for Academic and Cultural Education (**SPACE**) meets for eight (8) Saturday sessions per semester (reduced from twelve/semester due to no funding).

2004-2005 Staff: (funded via #7 acct – remaining, grant funds, donations, fees)

- 2 nationally board certified teachers (mathematics, science)
- 1 charter school Master instructor (Language Arts)
- 1 recent NCSU grad w/extensive experience & graduate student
- 2 NC State work-study student tutor/mentors
- 1 part-time NC student volunteer coordinator, tutor, and teacher assistant
- 10 –15 NCSU student volunteer tutors, teacher assistants, and mentors

SPACE served more than 650 students in the past ten years; several college grads; several enrolled at NCSU who serve as tutors and mentors; many enrolled in UNC system and other universities nation-wide

Strategy

- Present cutting-edge supplemental instruction for middle school students;
- Document instructional strategies;
- Establish reliable measures of academic and social performance;
- Monitor students;
- Publish & present findings, e.g., US Trio, NCORE, ABSE conferences;
- Implement bi-weekly tutorial sessions;

Establish best practices model

SPACE Activities – Program Format

1. Saturday sessions- 8 per semester wherein students rotate each 50 minutes among mathematics, language arts, science and history/culture interactive, student-centered instructional classes;
2. Saturday, Tuesday and Thursday- NCSU student volunteers tutor SPACE participants in mathematics, writing development, reading comprehension, problem-solving development.
3. Field trip experiences (only one this term because of funding and no over night) that reflect training from the classroom, particularly mathematics of travel and cost estimation; the writing and reading associated with gathering information; problem-solving skills vis a vis planning; science related to the experience- ecology, environment, mechanics of transportation, etc.
4. Pre-, post- and periodic assessments of student progress;
5. During summer camp, along with the mathematics, writing, reading & computer skills development, explore investing, entrepreneurialship, cooperatives, and the culture of money/currencies.
6. Collecting and analyzing student and family data to examine the benefits of SPACE.
7. High school assistance will include tutoring as needed, mentoring required and work opportunities, if appropriate, with SPACE summer camp.

SPACE INSTRUCTIONAL AREA FOCUS:

Math – fractions [all operations (AO)], decimals (AO), percentages, signed numbers, simple powers, order of operations, graphing points, lines, and transforming figures, math rules

Science – scientific method, all matter made of atoms, water is universal solvent, all living things composed of cells,

Language Arts – (oral, written and media technology) structure of a sentence; structure of paragraph; listening skills; speaking skills

African American history – culture – Africa, a continent; African countries; Africans pre-1600 AD; African American scientists, inventors, creators – past, present and future

PARTICIPANT BEHAVIORAL OUTCOMES:

1. 95% of **SPACE** participants who attend all sessions, including tutorial/mentoring sessions, who have no state-identified ‘special mental’ needs, and whose parents participate in parenting and information sessions will increase academic performance as demonstrated by earning average (C+ minimum) and above cumulative achievement in core classes;
2. 80% **SPACE** students who attend all sessions, including tutorial/mentoring sessions, who have no state-identified ‘special mental’ needs, and whose parents participate in parenting and information sessions will improve performance on end-of grade standardized testing.

3. 20% **SPACE** participants will increase their participation in school and community activities evidenced by enrollment in and active participation in school clubs/organizations, faith-based activities, and other community/civic organizations, e.g. Girl/Boy Scouts, Y-Teens, Top Teens.
 4. 90% will improve school attendance.
 5. 100% will write and state long and short-range goals with accompanying steps to achieve goals.
 6. 100% will increase **SPACE** administered pre- post academic area assessment scores.
 7. **75% SPACE** participants will travel outside of NC to a prominent educational/historical site due to attending 90% of sessions.
 8. Parents will know the public educational and financial resources available in the Triangle area for upgrading skills.
- 10% of **SPACE** students will present competitive science fair projects during their middle and high school years.

NC State University Educational Talent Search Program

Name of Director and Staff:

Marsha Boyd Pharr, Director
 Sandra Conoly, Assistant Director
 Marion Carter, Program Coordinator
 Vacant, Program Coordinator
 Latisha Walker, Middle School Coordinator
 Robin Jones, Program Assistant

Contact Information:

Campus Box 7319, Raleigh, NC 27695
 (919) 515-6447
 Web Address: http://www.ncsu.edu/student_affairs/talent/index.html

The Educational Talent Search Program (ETS) was initially funded in October 1990. The first year primarily focused on staffing the program. The first full year of program implementation began in 1991 with the recruitment of 800 participants. Over the past 14 years, many students have been served. Because this program serves middle school students, many of the participants are still in high school and college. Please keep this in mind when reviewing the college placement information.

Educational Talent Search Program mission: The mission of the North Carolina State University Educational Talent Search (ETS) Program is to 1) provide equal access to quality education without regard to race, color, national origin, gender, or disability and 2) facilitate retention and promotion from middle and secondary grades through college completion for participants in the program.

ETS primary learning experiences offered to the students include:

College Visits	SAT/ACT Preparation Sessions
Tutorial Sessions	Academic Advising
Test-taking Skill Development	Writing Camp
Technology Institute	
Admissions/Financial Aid Counseling and Fee Waivers	
Cultural Enrichment through trips to museums, plays guest speakers, etc	

ETS participants are include Middle School, High School, College “stop-outs”, and Adults

The racial makeup of ETS participants are 87%% African-American, 7.5% White, 3.5% Hispanic or Latino, 1% Asian, .5% American Indian or Alaska Native, .5% Native Hawaiian or Pacific Islander

The ETS programs has served approximately 2,100 students.

Presently, 800 students are involved in the ETS program.

21 (known) students were accepted or enrolled at NC State University. 5 (known) students have graduated from NC State.

There are two students presently enrolled at NC State who have participated in the ETS program.

Kris Kirby

Natalie Vinson

There are 20 students who have graduated from NC State University. They are:

Latoya Blackmon

Dawn Shepard

Christopher Cohen

Andrea Michelle Resto

Mary Terry

Travis Blackwell

Nadia Miller

Katherine Melissa Shaw

Aдриene Bowens

Julia Forbes

Mekel Tomlinson

Celeste L. Loftin

Summer Wilson

Ishmael Farrington

Fallon Robertson

Chrystal Yarborough

Shon Bullock

Kenisha Bethea

Willie Hill

Talib Idris

70% of the graduating seniors actually were accepted and/or enrolled in an institution of higher education. Approximately 700.

NC State University Upward Bound Program

Name of Director and Staff:

Marsha Boyd Pharr, Director
 Willie Edmonds, Assistant Director
 Cecilia Johnson, Academic Coordinator
 Julie Freeman, Administrative Assistant

Contact Information:

Campus Box 7317, Raleigh, NC 27695
 (919) 515-3632

Web Address: http://www.ncsu.edu/student_affairs/upward_bound/

The Upward Bound Program has been in existence since 1978. During this time the program has evolved to include the sophisticated tracking system that has been in place since 1999. Prior to that, the program was not given funding to nor required to track students after high school completion and acceptance into college. With this being said, you will find the following data as per your request

Upward Bound's mission: The mission of the North Carolina State University Upward Bound (UB) Program is to provide participants, without regard to race, color, national origin, gender, or disability, with the academic skills and motivation necessary for persistence and success in their secondary and post-secondary education.

Upward Bound primary learning experiences offered to the students include:

College Visits	SAT/ACT Preparation Sessions
Tutorial Sessions	Academic Advising
Test-taking Skill Development	Advanced Academic Instruction
Freshmen Level Course Credit	
Admissions/Financial Aid Counseling and Fee Waivers	
Cultural Enrichment through trips to museums, plays guest speakers, etc	

Upward Bound participants are 9th – 12th grade High School students.

99% of Upward Bound participants are African-American.

Since 1999 (When formal tracking began) 282 students have been served through the Upward Bound program.

113 students are presently involved in the Upward Bound program.

15 of these students are presently enrolled at NC State University. 2 have graduated from NC State University.

Students presently enrolled at NC State who have participated in the program:

April Alston	Kevin Patterson	Angelica White
Shemeka Crudup	Otis Ricks	Benita Whitfield
Robert Hargrove	Crystal Stallings	Macy Williams
Freda Lamay	Rhonda Stallings	
Amanda Linyear	Antanette Thomas	
Kyle Lockhart	Crushonda Todd	

On average, 96% of the high school graduating class continues on to college.

North Carolina Math and Science Education Network (NC-MSEN)

Name of Director: Braska Williams Jr, Coordinator
Program Staff: Dwight Hawkins, Assistant Coordinator
Priscilla Guthrie, Program Assistant

Contact Information:

515-6914 (general office phone)

Braska - 515-6918

Dwight - 515-6917

Fax: 513-2265

Website Address: <http://www.ncsu.edu/crmse/programs/msen.html> (this website is in the process of being overhauled; new website will be up by the middle of February.)

NC-MSEN was started at NC State in 1986. It originally was the Triangle Consortium (UNC-CH & NCSU combined); it split a year or two afterward. Our program is housed in the College of Education through the math, science, and technology education department. Every MSEN Pre-College program is a part of a math and science center in the College of Education on each campus. We are a part of the Center for Research in Mathematics and Science Education (CRMSE) here at NCSU. Our program is funded by the state of North Carolina and exists on six other state university campuses: UNC-CH, UNC-Charlotte, Fayetteville State University, Elizabeth City State University, NC A&T State University, and Winston-Salem State University.

NC-MSEN mission: to increase the number of students (especially underrepresented minority and females) who have sufficient interest and preparation to pursue science, technology, engineering, and mathematics (STEM) careers at the university level

NC-MSEN has roughly 350 middle and high school students from Wake and Johnston Counties who participate in the program. Some primary learning experiences offered to students includes:

1. **Saturday Academy** meets 15 Saturdays throughout the school year; we provide academic enrichment classes to our students in this academy. We offer enrichment classes in mathematics, science, technology, cultural awareness, scholarship research, how to prepare for college, and career exposure. Since I'm new, I'm implementing a career exposure piece to our academy for high school students. Tomorrow, our high school students will spend the morning at the College of Natural Resources in a tour, informational session, and hands-on sessions on the types of careers that their college offers. Classes meet from 8 - 12 noon on the Saturdays that we meet. Each student is required to attend at least one session, which lasts for five weeks. We are currently in the midst of our second session.

2. Middle School Enrichment Class - Each middle school that participates in our program offers an elective math/science enrichment class. This class is taught by a teacher as designated by the school's principal. The teacher teaches hands-on math and science activities, career exposure, and study skills. Projects are done with the students. Guest speakers who work in STEM careers are brought to the class.

3. Academic Club of Excellence (ACE) Club - an academic after-school club program; encourages students to pursue STEM careers; teachers/guidance counselors serve as advisors/sponsors of the club

4. Summer Scholars Program - This is similar to our Saturday Academy. We offer this program from 2 - 4 weeks dependent upon funding. We offer a variety of courses usually math, science, communications, and cultural awareness. Most of the teachers are from Wake County and/or Johnston County. Our primary focus is to prepare students for their upcoming mathematics course.

5. MSEN Day - A statewide competition between all of the pre-college sites across the state. This competition is held all day on a Saturday usually in April at one of the colleges. This year's host is Elizabeth City State University while we (NCSU) will host this competition in the spring 2006. Students compete in teams of 2 - 3 in a variety of events, Egg Parachute Drop contest, Mystery Architecture, Water Bottle Rockets, Algebra I - Calculus, Middle Grades Science - Physics, and a Quiz Bowl Competition. The first activities that I named are Science Olympiad activities while the math and science courses are academic challenges between the different pre-college sites. Student teams can win a gold, silver, or bronze medal. An overall first, second, and third place trophy is given overall to the top three pre-college sites based upon the number of 1st, 2nd, and 3rd place team winners. A campus tour is given along with a major guest speaker; lunch is provided to the students.

6. Awards Ceremony - This is a ceremony to recognize our top academic performers for the school. We recognize the top three students by grade level at every school that participates in our program. At the middle school level, we hand out trophies while at the high school level; we give monetary awards for the top students. We also recognize the honor mention students, which are the students who have over a 3.0 but did not make the top three with trophies. We invite a guest speaker and parents to attend as well.

7. Parents Involved with Excellence (PIE) Club - Each school that participates is required to form a parent boosters club. The parents help with fund raising and any support of program activities.

NC-MSEN participants are in grades 6th –12th.

The racial makeup of NC-MSEN students is 79% African-American; 7% White; 5% other; 4% Asian; 3% Bi-Racial; 1% Hispanic.

NC-MSEN serves approximately 4,500 students total.

Presently, 350 students are involved in the NC-MSEN program. Forty-seven NC-MSEN students have enrolled at NC State University. They are as follows:

North Carolina State University MSEN Students

1993-94 HS Graduates

Majors

Cross, Davion	Computer Engineering
Dunn, LaTonya	Broadcast Journalism
Langston, Jada	Education (Math)/Engineering
Mack, Cameron	Architectural Design
Moore, Kenisha	NCSU
Roberts, Michelle	Veterinary Medicine
Walker, Mecheka	Chemical Engineering

1994-95 HS Graduates

Alston, Harriet	Psychology
Bailey, Taunya	Biomedical Engineering
Bickram, Emily	Pre-Med
Cross, Renee	Animal Science
Pinder, Troy	Pre-Med
Sledge, Damion	Communication
Spinks, Carmine	Pre-Med

1995-96 HS Graduates

Cohen, Erika	Anthropology
Cross, Sherine	Accounting
Martin, Timothy	Electrical & Computer Engineering
Neal, Christopher	*Pre-Med Parks Scholarship
Robinson, Sabrina	Psychology/Communication

1996-97 HS Graduates

McClain, Thomas	Undecided
Roldan-Lewis, Thannie	Biology
Rookard, Misti	Electrical & Computer Engineering
Shields, Jolon	Engineering
Utley, James Stacey	Architectural Design

1997-98 HS Graduates

Boone, Victor	Civil Engineering
Clegg, Tamara	Applied Mathematics

Holland, Stanley	Industrial Engineering
Kelly, Freddie	Industrial Engineering
Oraefo, Oge	Computer Engineering
Parmar, Seema	Pre-Law
Thomas, LaShara	Psychology/Education

Note: Information was taken from students surveyed in July, prior to enrolling into college.

1998-99 HS Graduates

Potts, Aisha	Biomedical Engineering
White, Tia	Chemistry

1999-2000 HS Graduates

Kennedy, Marcelle	Computer Science
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2000-2001 HS Graduates

Anthony, Antwan	Undecided
Brown, Hamilton	Undecided
Carmon, Michelle	Undecided
Ogbon, Janet	Psychology/Pre-Law
Omoti, Rasheeda	English
Pressley, Brian	Engineering
Williams, Katesha	Biology

2001-2002 HS Graduates

Ahsan, Mahroo	Pre-Med
Fogg, Angel	Computer Science/Mathematics
Walker, Ian	Engineering

2003-2004 HS Graduates

Bunn, Jania	Biological Sciences
Gary, Trey	Computer Engineering
Morgan, Amir	Biomedical Engineering

Note: Information was taken from students surveyed in July, prior to enrolling into college.

A request has been made to the NC-MSEN statewide director for data on the number of students who graduated from NC State University. 273 students have graduated from high school from our program and have attended other universities. 80% of our students major in a STEM major while our average SAT score is 1100 for our students.

Award: 1998 NSF Presidential Award for Excellence in STEM mentoring

Performing Inquiry Based Explorations: An Example in Using Agricultural Plant Waste and Wastepaper to Make New Products

Name of Director: Richard Venditti, PhD,
Program Staff: Lesley Grieco; Linda McMurray; Joel Pawlak, PhD; Med Byrd, PhD;
Hasan Jameel, PhD; Marte Hubbe, PhD
Contact Information: 515-6185
Email Address: richard_venditti@ncsu.edu
Web Address: <http://www.cfr.ncsu.edu/wps/k12activities/introduction.htm>

Sponsored by a grant from The Burroughs-Wellcome Fund (program does not exist anymore)

Performing Inquiry Based Explorations was started at NC State during the summer of 2001.

Performing Inquiry Based Explorations mission: to teach students methods of producing fiber, explore paper recycling and its impact on the environment, discover applications of chemistry and chemical engineering, explore careers in science, and interact with scientists to solve real world problems.

Some of the primary learning experiences are participation in lectures and labs.

Performing Inquiry Based Explorations participants are rising high school juniors and Seniors.

The racial makeup of Performing Inquiry Based Explorations students is Caucasian, African-American, Asian, and Hispanic.

The Performing Inquiry Based Explorations program has served 20 students per summer for 3 summers. A total of 60 students.

Names of students presently enrolled at NC State who have participated in the Performing Inquiry Based Explorations program are: Evan Boykin, Armando Contreras, Brooke Jenkins, Chelsea Ngongang, Ashley Tharrington, Corey Gooden, Erin Welch, Tabatha Blalock, Rachel Neubert, Erica Peele, Marc Horstman, and Chris White (I may have missed a couple).

At this time, no Performing Inquiry Based Explorations students have graduated from NC State University. They are too young.

About 42 students go to a college other than NC State University.

Photonics Xplorers

Name of Director: Dr. David G. Haase, Director of the Science House
Dr. Joyce Hilliard-Clark, Program Coordinator
Mr. Brandon Conover, Photonics Lead Instructor
Ms. Patricia Marion, Program Assistant

Contact Information:

NC State University
The Science House
Campus Box 8211 / Research Bldg IV
Raleigh, NC 27695-8211
www.science-house.org

Photonics Xplorers was started at NC State in July of 2004.

Photonics Xplorers mission: To help ninth and tenth grade students who have participated in pre-college programs to continue to improve their science and mathematical knowledge in preparation to take advanced courses in high school. In the program, students gain knowledge and understanding of careers using sound and light for entertainment, communicating across distances, and exploring businesses and industries using photonics. The Photonics Xplorers Program helps the students' transition into advance science classes by preparing students for college and participates in small group guidance sessions focused on strengthening their organizational skills, study habits, SAT preparation and personal presentation skills.

Most activities use the idea of discovery learning:

- Provides hands-on learning experiences to promote enthusiasm for science and math.
- Introduces Photonics concepts & technology
- Introduces geometry and algebra concepts
- Provides academic skills needed for high school
- Provides tours of laboratories and industries for career awareness

Ninth and tenth grade students from Harnett, Johnston, Lenoir, Pitt and Wake Counties are participants in the Photonics Xplorers program.

Of the 22 students enrolled in the Photonics Xplorers program, 90% African-American, 5% Caucasian, and 5% identified themselves as other. Student gender is 52% are females and 48% males. Seventy-seven percent are Imhotep Academy graduates. The ratio will vary yearly depending on applicants.

The Photonics Xplorers program has served twenty-two students.

Twenty-two students are presently involved and will expand to 30 students this year.

Presently, there are none of Photonic Xplorer students have enrolled at NC State University. This is a new program funded by Burroughs Wellcome Fund and The Science House.

Recognizing Accelerated Math Potential in Underrepresented People (RAMP-UP)

Director: Liz Parry, Engineering
 Principal Investigators: Dr. Laura Bottomley, Engineering
 Dr. Karen Hollebrands, Education
 Senior Collaborator: Dr. James Nelson, Shaw University Math Department

Contact Information: Liz Parry; eaparry@ncsu.edu;
 515-2315
 Web Address: <http://www.engr.ncsu.edu/k12outreach/GK-12Fellows.htm>

RAMP-UP started in 2004. The model being used for RAMP-UP is based on one we developed in a previous NSF GK12 grant that focused on science achievement (1999-2003).

RAMP UP's mission: The primary goal of RAMP-UP is to increase the number and diversity of students enrolling and achieving in higher level math courses, specifically Algebra by 8th grade and Calculus by 12th. While we work with entire classrooms, we've defined our target group as female, African-Americans, Hispanic and low-income students. We implement the program by partnering university graduate and undergraduate students in engineering, education, math and the sciences with classroom teachers in grades 3-12 at nine partner schools. RAMP-UP is a five-year grant program co-funded by the GE and National Science Foundations (~\$3 million overall) and is a partnership between the NCSU Colleges of Engineering and Education, Shaw University's Math Department and Wake County Public Schools.

In addition, we have as goals the intent to increase the content gain and professional development opportunities for our partner teachers as well as improve the teaching and communication skills for our university student participants (fellows). By intent, we market the program to all students but pay particular attention to the recruitment of women, African American and other minority students. As a result, 65% of our university fellows are women and 35% are African American.

RAMP-UP provides college students to work in classrooms with K12 teachers and students for 10-15 hours each week. During their time at the K12 school, the university students might teach an inquiry based math lesson they have developed on their own, work with the teacher to deliver a teacher developed lesson, implement an inquiry based activity they have developed to demonstrate a math concept introduced by the teacher, work with small groups or individual students, run math 'centers', provide tutoring services before or after school, work with a specific after school 'club' at the school (Boys and Girls Club, native Spanish speaker's club, engineering club, math club are a few current examples), and certainly serve as role models for our 1000+ participating K12 students and their peers.

RAMP-UP serves age eight (expanding to nine this semester) Wake County Schools (5 elementary, 2 middle and 2 high). RAMP-UP also works with students from grades 3-12.

RAMP UP's partner schools were chosen specifically for their diverse student bodies. Eight of our nine schools are magnet schools, part of Wake County's efforts to utilize urban school buildings by implementing programs that attract a diverse student body. While Wake County does not consider race in its assignment decisions, they do take into account the Free and Reduced (or subsidized) lunch percentages. Data has shown a strong correlation between F&R rates and minority percentages in Wake County. The F&R rates at our schools range from 25-nearly 40%. By our own calculations, the percentage of African American students at our schools ranges from 20-60% (the county's overall percentage is currently around 28%). Hispanic/Latino populations are much smaller (<5%) but it is a growing demographic at each of our schools, as it is in the county overall (~6% of total).

RAMP-UP serves over 1000 K12 students this year (year one of the five year program).

From the K12 community RAMP-UP presently has over 1000 K12 students, nearly 50 teachers/staff members involved. At NCSU: two faculty, project director, five graduate students, 15-20 undergraduate students in STEM disciplines. At Shaw University: one faculty member, five undergraduate students in math or computer science.

RAMP-UP does not have any students enrolled at NC State University to date. RAMP-UP is only in the first year of implementation. However, RAMP-UP has several undergraduates in the program who worked with our previous GK12 while in school.

Summer Textiles Exploration Program (STEP)

Name of Director: Ms Astra Barnes

Contact Information: 515-6607

Email Address: astra_barnes@ncsu.edu

Web Address: http://www.tx.ncsu.edu/student_services/step.html

STEP was started in the early 1970's and was previously known as the Textiles Summer Research Program. Name was changed in 2000 to Summer Textiles Exploration Program.

STEP's mission: Educate rising high school seniors about the size, scope and importance of textiles and related enterprises.

Students who participate in STEP work with professors in small groups on projects related to textiles design, polymer and color chemistry, apparel construction, textiles engineering and management. Students also attend presentations on scholarships, the admissions process and take a campus tour.

STEP participants are rising high school seniors.

STEP participants are predominately white females. STEP has began to rigorously market this program to underrepresented student populations.

STEP serves approximately 100 students per year.

This summer STEP expects approximately 100 students to participate.

Over the years, STEP usually yield approximately 50 percent of the participants into NC State, of which 30 percent choose to major in Textiles.

Over the past 5 or 6 years, approximately 200 STEP participants have enrolled at NC State right now.

Most of the students participating in STEP are of high academic ability, therefore, the ones who choose not to attend NC State, attend other colleges.

Students completing STEP are automatically nominated for our Centennial Scholarship process. This year, 6 of the 10 winners participated in last summers STEP.

WoodLINKS

Name of Director: Urs Buehlmann, PhD

Program Staff – Lesley Grieco, Rick Lemaster, Bill Bryan, Myron Kelly, Perry Peralta

Contact Information: 515-5580

Email Address: urs_buehlmann@ncsu.edu

WoodLINKS was started at NC State during the summer of 2004.

WoodLINKS mission: to teach students about the science and processing of wood products as well as to learn in an university environment

Some of the primary learning experiences offered to the students include hands-on, interactive laboratory experiments, produce wood products using equipment in the Hodges Wood Products Lab at NC State, and travel across NC to visit wood products facilities.

WoodLINKS participants are rising high school juniors and seniors.

The racial makeup of WoodLINKS students is mainly Caucasian and Hispanic.

The WoodLINKS program has served 16 students to date.

Presently, WoodLINKS is advertising for this summer.

At this time, none of the WoodLINKS students have enrolled at NC State University. The program is too new.

Additional Pre-College Programs

EnviroTech: High Tech Careers in Environmental Science

Use computers and laboratory equipment to investigate the science behind the changes in our earth using chemistry, physics, math, statistics and the marine, earth and atmospheric sciences are the premises of this camp.

Dates:	2-week summer program
Target Audience:	Rising grades 11-12
Program Fees:	None
Scholarships Available:	No
Residency Required:	Yes
Contact:	Mike Smith
Phone:	919-515-5568
Email:	mike_smith@ncsu.edu
Address:	The Science House, NCSU Campus Box 8211 Raleigh, N.C. 27695

<http://www.science-house.org/student/envirotech/>

Young Writers Workshop

Classes taught by writers of fiction, poetry, science fiction, and drama offer young people a variety of ways to explore their creative writing abilities.

Dates:	2-week summer program
Target Audience:	grades 4-8
Program Fees:	\$200.00
Scholarships Available:	No
Residency Required:	No
Contact:	Daun Daemon
Phone:	919-515-4128
Email:	ddaemon@earthlink.net
Address:	Young Writers Workshop Attn: Daun Daemon Campus Box 8105 Raleigh, NC. 27695

<http://www.chass.ncsu.edu/youngwriters/>

Summer College in Biotechnology and Life Sciences

A unique opportunity for outstanding high school students to participate in a college level program focused on biotechnology. Students will take two courses for college credit.

Dates:	Two 1-month summer program
Target Audience:	Rising grades 11-12 (Co-ed)
Program Fees:	\$785+books, meals, parking for NC residents
Scholarships Available:	Yes
Residency Required:	No
Contact:	Carol Cutler Wright
Phone:	919-513-7762
Email:	summer_college@ncsu.edu
Address:	SCIBLS Coordination, NCSU Campus Box 7401 Raleigh, NC 27695

<http://www.cifr.ncsu.edu/scibls/>

Wolfpack Motorsports Program

Conducted by Wolfpack Motorsports and NCSU Department of Mechanical and Aerospace Engineering, this damp introduces campers to the basics of vehicle dynamics, suspension geometry, chassis tuning, and their underlying engineering principles.

Dates:	Two 1-week summer programs
Target Audience:	rising grades 11-12 (Co-ed)
Program Fees:	\$550
Scholarships Available:	Yes
Residency Required:	Yes
Contact:	Kay Leager
Phone:	919-515-9669
Email:	kay_leager@ncsu.edu
Address:	Engineering Summer Programs, NCSU Campus Box 7904 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Computer Science Summer Workshop

Students participating in this workshop will be exposed to multimedia and object-oriented programming, using languages such as C, C++ or Java and will apply those programming techniques in solving a real-life computing problem or creating a game.

Date:	Two 1-week summer programs
Target Audience:	rising grades 11-12 (Co-ed)
Program Fees:	\$550
Scholarships Available:	Yes
Residency Requirements:	Yes
Contact:	Kay Leager
Phone:	919-515-9669
Email:	kay_leager@ncsu.edu
Address:	Engineering Summer Programs, NCSU Campus Box 7904 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Environmental Science Program for Middle School Students

Students will participate in a variety of laboratory exercises and field trips to learn about environmental problems and issues while conducting a group research project.

Dates:	1-week summer program
Target Audience:	middle school students (Co-ed)
Program Fees:	\$175
Scholarship Available:	No
Residency Required:	No
Contact:	Dr. Charles Lytle
Phone:	919-788-5355
Email:	lytle_bio@ncsu.edu
Address:	Dr. Charles Lytle, Biology Outreach Program Campus Box 7532 Raleigh, NC. 27695

<http://www.ncsu.edu/acp/ss-youthprograms.html#CALs>

Young Investigators Program in Nuclear Technology and Applications

The program is designed to provide insight into nuclear science fundamentals through a combination of laboratories, field trips, guest speakers, research projects and lectures.

Dates:	3-week summer program
Target Audience:	rising grades 11-12 and graduating seniors
Program Fees:	\$900
Scholarships Available:	Yes
Residency Required:	Yes
Contact:	Lisa Marshall
Phone:	919-515-5876
Email:	lisa.marshall@ncsu.edu
Address:	NCSU Dept. of Nuclear Engineering Campus Box 7909 Raleigh, NC. 27695

<http://www.ne.ncsu.edu>

Academic Enrichment Opportunities (AEO)

Students with exceptional high school records who have exhausted all course options available at their high school may take NC State courses for credit while still in high school. Wake County students only.

Dates:	Ongoing and Summer
Target Audience:	high school students
Program Fees:	varies by program
Scholarships Available:	No
Residency Required:	No
Contact:	AEO Staff
Phone:	919-515-2265
Email:	acpaeo@ncsu.edu
Address:	AEO Program Information Campus Box 7401 Raleigh, NC 27695

<http://www.ncsu.edu/acp/>

Student Introduction to Engineering (SITE)

SITE is designed to introduce students to many different disciplines within engineering. SITE features demonstrations, lectures, laboratory experiments, and hands-on exercises in engineering labs.

Dates:	1-week summer program
Target Audience:	rising grades 11-12
Program Fees:	\$450
Scholarships Available:	Yes
Residency Required:	Yes
Contact:	Kay Leager
Phone:	919-515-9669
Email:	kay_leager@ncsu.edu
Address:	Engineering Summer Programs, NCSU Campus Box 7904 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Aerospace Engineering

Through classroom work and wind tunnel experiments, students learn the basic principles of aerospace and mechanical engineering.

Dates:	Two 1-week summer programs
Target Audience:	rising grades 11-12 (Co-eds)
Program Fees:	\$550
Scholarships Available:	No
Residency Required:	No
Contact:	Kay Leager
Phone:	919-515-9669
Email:	kay_leager@ncsu.edu
Address:	Engineering Summer Programs, NCSU Campus Box 7904 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Civil Engineering

Students who attend this program move from the origins of civil engineering and constructive management to the technology of the 21st century.

Dates:	1-week summer program
Target Audience:	rising grades 11-12 (Co-eds)
Program Fees:	\$550
Scholarships Available:	Yes
Residency Required:	Yes
Contact:	Kay Leager
Phone:	919-515-9669
Email:	kay_leager@ncsu.edu
Address:	Engineering Summer Programs, NCSU Campus Box 7904 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Mechatronics

The mechatronics Workshop, offered by the Department of Mechanical and Aerospace Engineering, introduces students to the world of mechatronics – intelligent electromechanical systems.

Dates:	Two 1-week summer programs
Target Audience:	rising grades 11-12 (Co-eds)
Program Fees:	\$550
Scholarships Available:	Yes
Residency Required:	Yes
Contact:	Kay Leager
Phone:	919-515-9669
Email:	kay_leager@ncsu.edu
Address:	Engineering Summer Programs, NCSU Campus Box 7904 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Autonomous Robotics

Students participating in this workshop will build a robotic car that can automatically track a line, follow a light, or hide in the dark like a cockroach. The “autonomous” part of this program means that the car will operate without an operator.

Dates: 1-week summer program
Target Audience: rising grades 11-12 (Co-eds)
Program Fees: \$550
Scholarships Available: Yes
Residency Required: Yes
Contact: Kay Leager
Phone: 919-515-9669
Email: kay_leager@ncsu.edu
Address: Engineering Summer Programs, NCSU
 Campus Box 7904
 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

Chemical Engineering Workshop

Students participating in the workshop will optimize a fuel cell powered mini-car and examine different ways of supplying hydrogen to control the vehicle.

Dates: 1-week summer program
Target Audience: rising grades 11-12 (Co-eds)
Program Fees: \$550
Scholarships Available: Yes
Residency Required: Yes
Contact: Kay Leager
Phone: 919-515-9669
Email: kay_leager@ncsu.edu
Address: Engineering Summer Programs, NCSU
 Campus Box 7904
 Raleigh, NC 27695

<http://www.engr.ncsu.edu/summerprograms/index2.html>

All-Arts & Sciences Camp

Designed to give quality instruction in the arts and sciences, the camp also includes recreation, values exploration, and citizenship components. This North Carolina State University camp is housed on the campus of the University of North Carolina at Greensboro.

Dates: June 19-24, 2005
Target Audience: ages 7-12 (Co-eds)
Program Fees: \$600 residential/ \$500 Day Camper
Scholarships Available: No
Residency Required: No
Contact: Kisha Carmicheal
Phone: 336-256-CALL or 866-334-CALL
Email: allarts@uncg.edu
Address: UNCG Division of Continual Learning
PO Box 26170
Greensboro NC 27402

<http://allarts.uncg.edu/dcl/web/allarts/default.asp>