



NCSSM

Igniting innovation,
cultivating community



North Carolina School of Science and Mathematics

Joint Education Appropriations Committee
North Carolina General Assembly
March 21, 2017



NCSSM

Agenda

- History & mission
- Institutional profile
- Opportunities & challenges
- Q&A





NCSSM

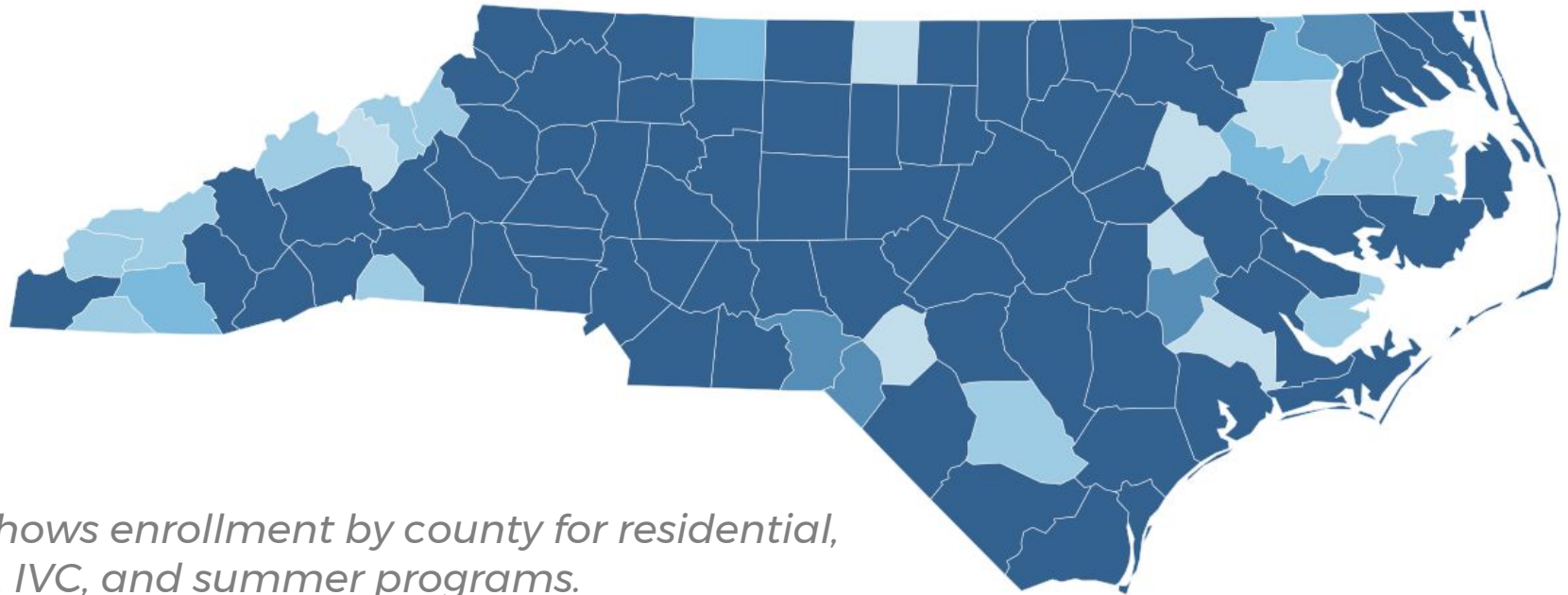
NCSSM =
Opportunity






North Carolina
School of Science
and Mathematics

Serving Students Across NC



*Map shows enrollment by county for residential, online, IVC, and summer programs.
The darker the blue, the higher the number of students.*

In 2016-17, residential and online students hail from 91 of North Carolina's 100 counties.



96 of North Carolina's
100 counties had
students applied for the
residential and online
Class of 2019 - 1,472
applicants.



NCSSM

2016-17 Enrollment

1030 students:

- 680 residential
- 350 online students

Over 300 high schools
represented





- NCSSM partners with 91 NC school districts and charter schools, providing instruction and working with local schools to ensure students get the opportunities they need.
- NCSSM provided more than 450 videoconferencing and 817 online course enrollments in 2016-17.



NCSSM



NCSSMDistanceEd

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Innovating Educational Spaces: NC School of
4,882 views • 1 year ago

This video production helped North Carolina School of Science and Math win the 2015 North Carolina Spaces for Innovation Institute for Emerging Issues. NCSSM was recognized for fueling innovation both on and off campus.

NCSSM models how physical and virtual spaces and collaboration can innovate educational spaces. An schools around the globe, NCSSM serves as a model economy to consider. Learn more: <http://goo.gl/KR>

...

About NCSSM



Innovating Educational Spaces: NC School of Science and Math
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Students Talk About Summer Accelerator
NCSSMDistanceEd
990 views • 11 months ago



North Carolina School of Science and Math Virtual Open House
NCSSMDistanceEd
5,633 views • 2 years ago

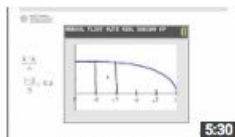


We Are the North Carolina School of Science & Math
NCSSMDistanceEd
11,297 views • 5 years ago

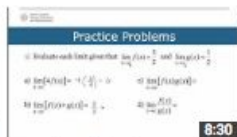
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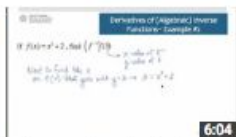
Trapezoidal Rule: Example 1
25 views • 1 week ago



Trapezoidal Rule: Example 2
17 views • 1 week ago



Properties of Limits
17 views • 1 week ago



Derivative of an Algebraic Inverse Function: Examples
3 views • 1 week ago



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Rich Library of Digital Assets

NCSSM digital assets:

5.8 million views over past 4 years

YouTube channel

- 960 videos
- 1.4 million views in 2015-16

NCSSM Canvas courses

- 9,000 views since last year
- Includes 16 courses developed for NC STEM Anchor and Affinity schools through RttT.

Flickr

- 1,000 educational photos
- 450,000 views in 2015-16



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Opportunities to Grow and Thrive

Belton Moore '16 came to us from rural Red Springs, NC, a member of the Lumbee tribe. At NCSSM he conducted research on food science, led student groups, and earned a trip to India for research. He is now a Park Scholar at NC State University.





NCSSM

When 2 Schools are Better than 1

“I wouldn’t have known what to do in high school without NCSSM Online. And it definitely paid off.”

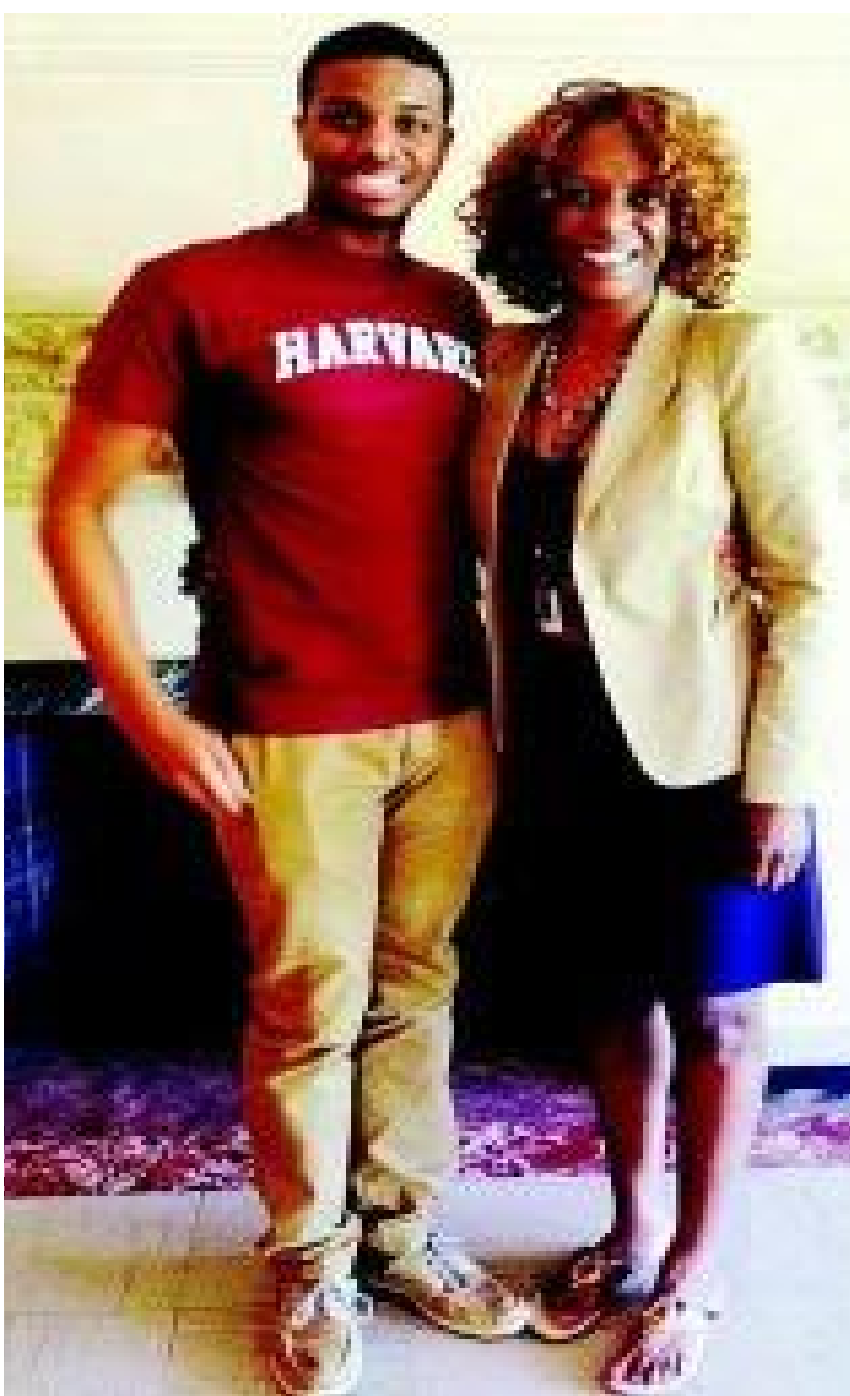
— Carley Parker, Online '15
Lexington, NC, earned full scholarship to Wake Forest, where she is studying pre-medicine.



From High Point to Harvard

“When I walked in my house, I immediately hit the ‘accept’ box on the screen.”

— Christian Bailey-Burke '15
High Point, NC, earned full scholarship to Harvard, and is now studying neurobiology and economics.





NCSSM

Locally Grown, Internationally Known

7 Regeneron Science Talent
Search Competition semifinalists
in 2016

8 Siemens semifinalists and 3
regional finalists in 2016

Singapore International
Mathematics Competition, 1st
place in 2012

6 Conrad Spirit of Innovation
winners in 2016

National Science Bowl, top 3 in
2016

Moody's Mega Math Challenge,
4th place in 2016, 1st and 2nd place
in 2015, 1st place in 2014.

Biology, Physics, and Mathematics
Olympiad Team semifinalists and
gold medalists





NCSSM

History & Mission



NCSSM

Innovation is in our DNA.

Visionary leaders
in the late 1970s designed our
school to focus on science and
math and to engage talented
students from across the state to
help grow NC's changing
economy.

Opened in 1980 as the first
school of its kind and 18 schools
around the globe have since
been modeled after NCSSM





NCSSM

Approximately 60% of nearly 10,000 alumni remain in North Carolina and contribute more than \$500 million in economic impact to the state each year.



Carl Ryden '89
CEO and Cofounder
Precision Lender, Cary



Jonathan Hayes '03
CEO & Founder
RewardStock, Raleigh



Jud Bowman '99
CEO & Founder
Sift, Durham




Laura Gerald '86
President
Kate B. Reynolds Charitable Trust



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New Generation of STEM Leaders

60% of NCSSM alumni earn college degrees in STEM fields, a rate 3 times greater than the national average for college graduates.



NASA Astronaut Christina
Hammock Koch '97

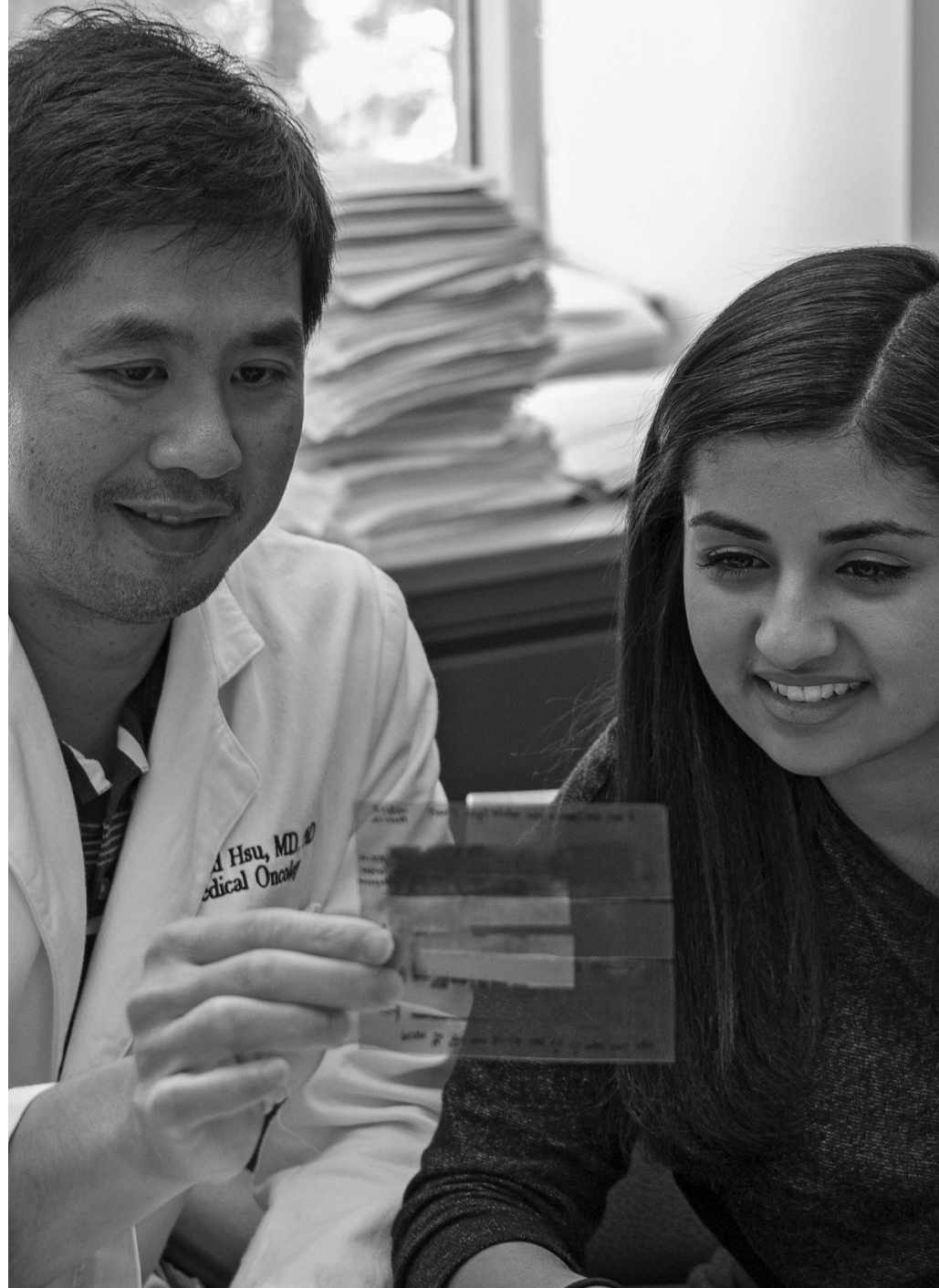


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50% of NCSSM
Alumni Hold at Least
a Master's Degree

25% Hold a
Doctorate

25% teach

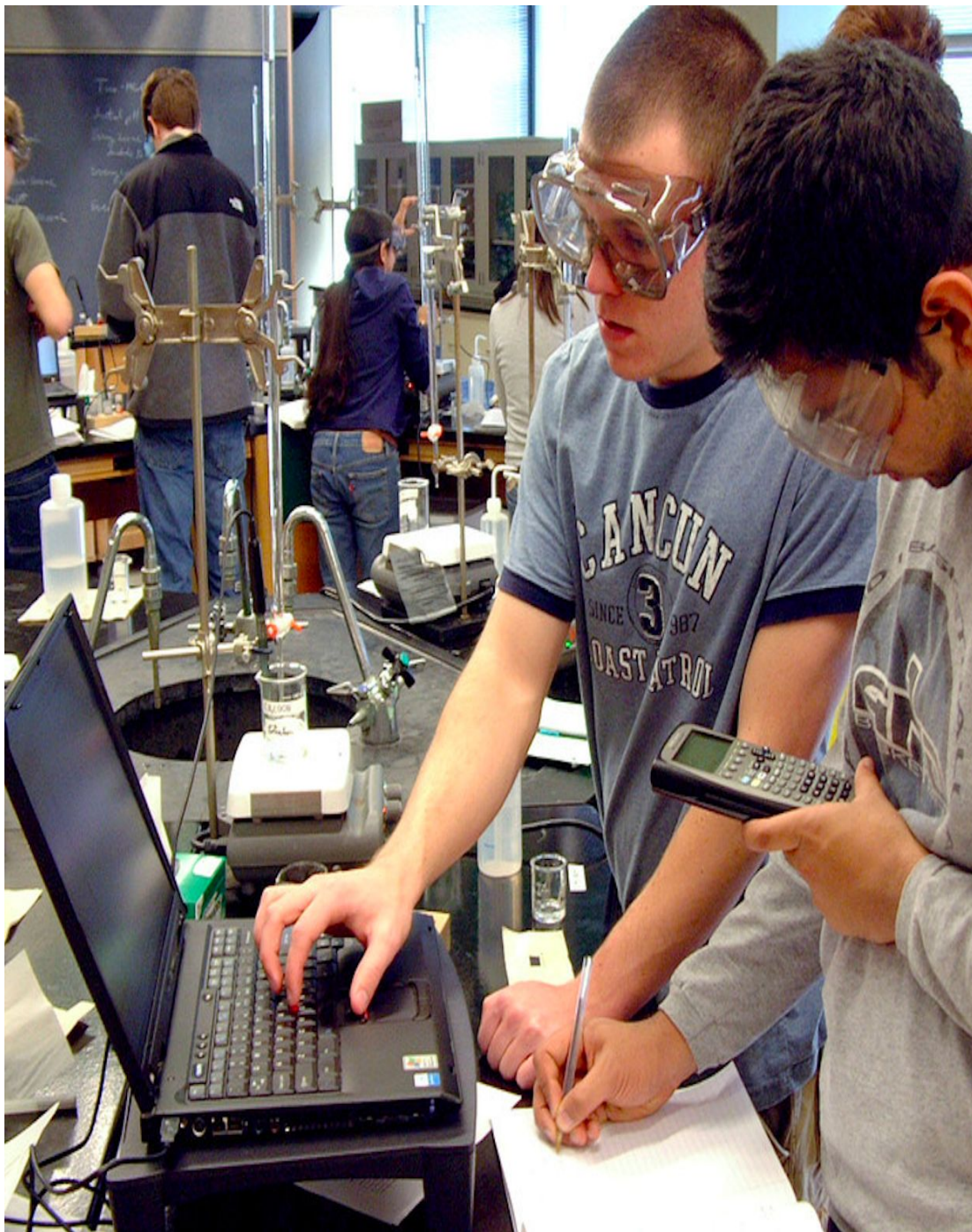




NCSSM

Engaging and Unique Curriculum

Robust course offerings in science, math, engineering, and computer science including more than 30 different math courses and courses in biology, chemistry, physics, engineering, and computer science ranging from molecular genetics to organic chemistry to astrophysics to advanced programming to electrical engineering.

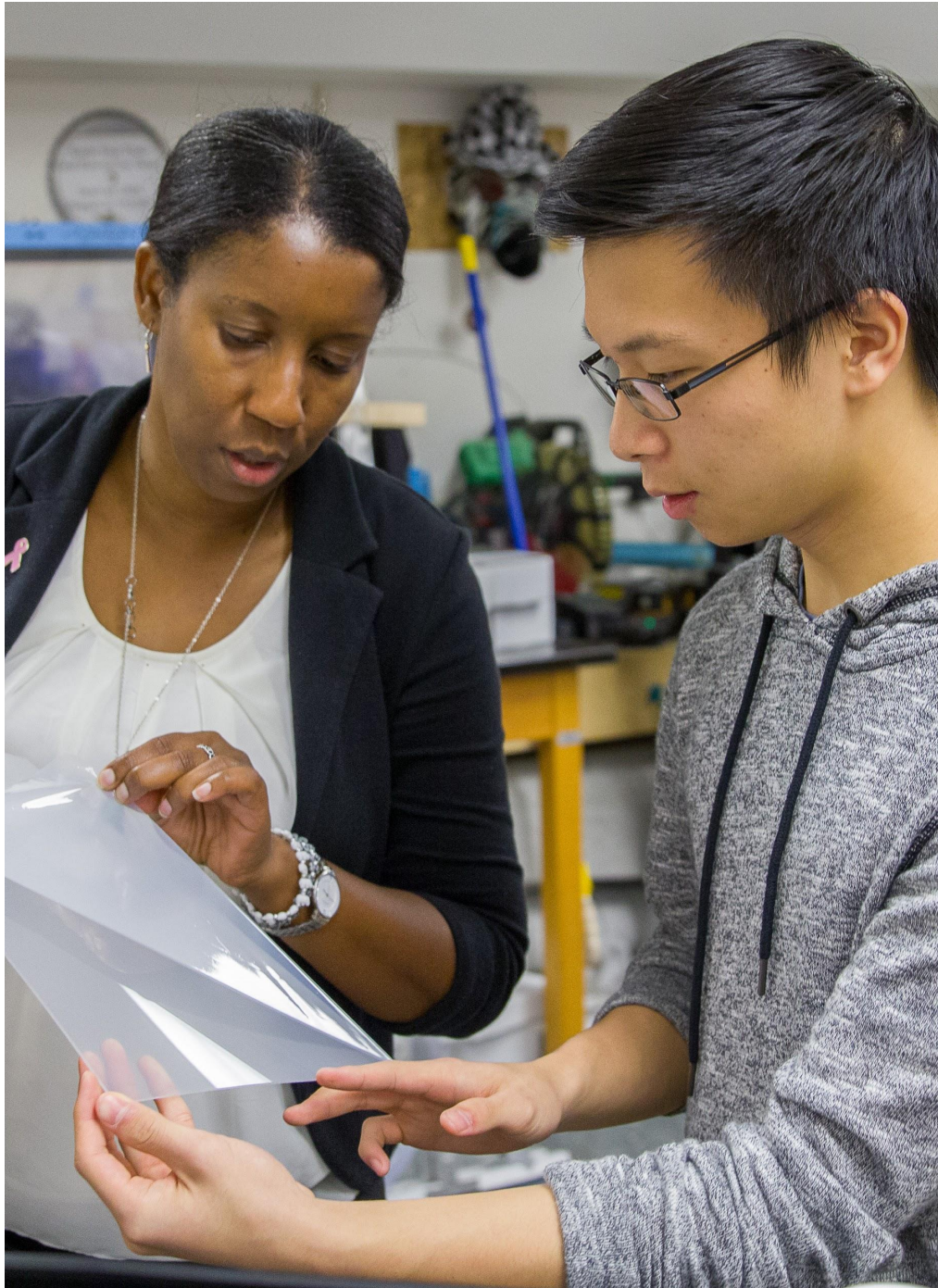




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Real-world Learning

- Research Experience in Biology, Chemistry, Physics, Humanities
- Research in Biology
- Research in Chemistry
- Research in Physics
- Research in Mathematics
- Research in Computational Science
- Research in Engineering
- Research in Humanities
- Mentorship
- Entrepreneurship





NCSSM

Well-rounded Education

Although not in our name, NCSSM has a rich program in the humanities including an award-winning fine arts program.

Here, Phillip Riggs, named Grammy Music Educator of the Year for 2016, conducts one of our ensembles.





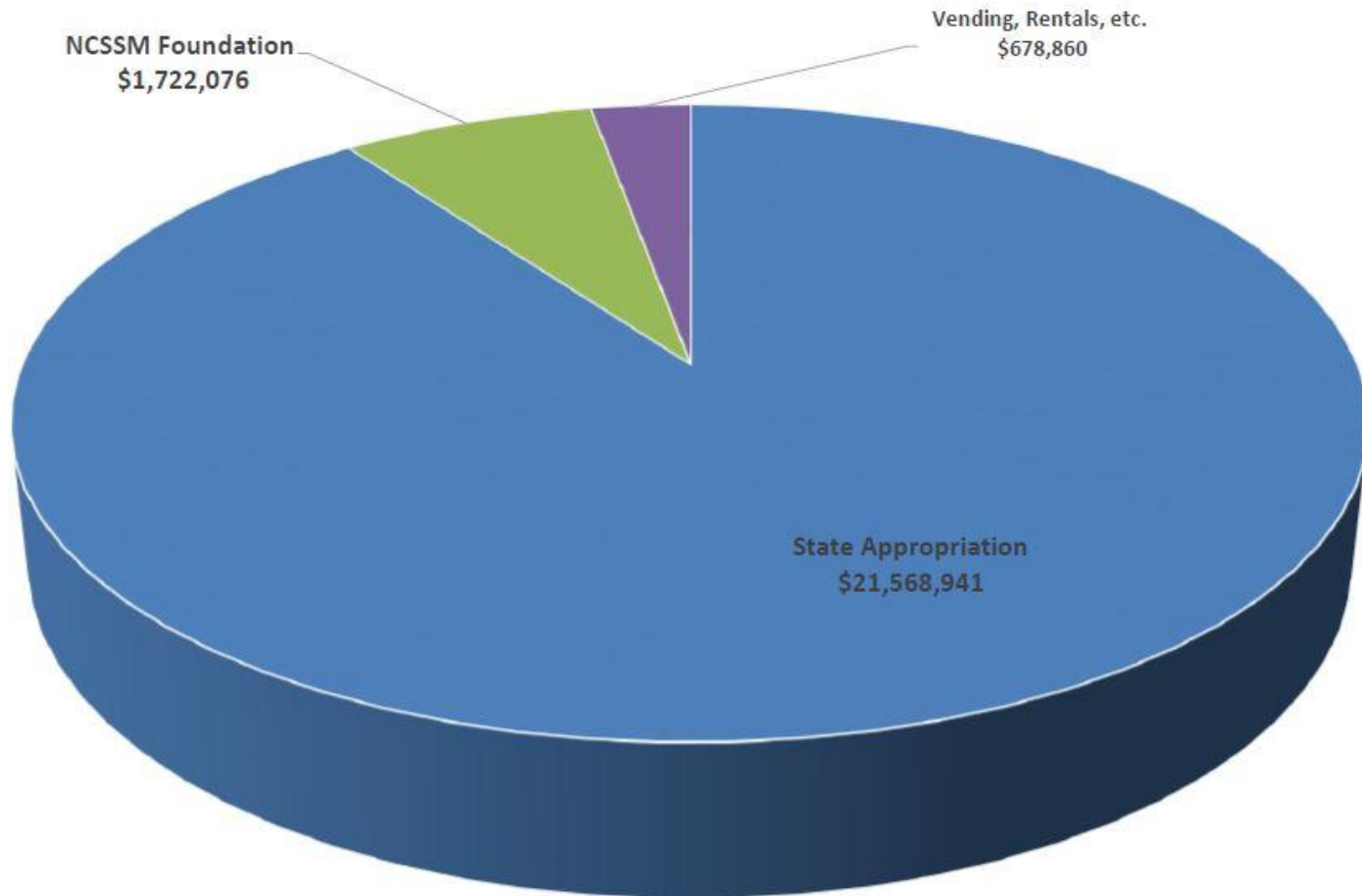
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Current Institutional Profile



North Carolina
School of Science
and Mathematics

2016-2017 Revenue Budget \$23.2 million





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Private Giving in 2016-2017

- \$650,000 to date from families and alumni
 - 55% of families
 - 10% of alumni
- \$1.32 million overall to date
- \$2.3 million overall goal





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Summer @ NCSSM

More than 900 students
attended 8 summer programs

- **Summer Accelerator**
- Summer Research and Internship
- Summer Leadership and Research
- Summer Bridge
- Online Orientation
- Step Up to STEM
- Eastern NC STEM
- STEM Camp for Visually Impaired and Blind Students
- Summer Ventures





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Opportunities and Challenges



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2017-19 Budget Priorities:

- More than \$43 million in documented repair & renovation needs
 - \$20 million currently requested
- Enrollment growth (\$403,968)
 - Provide support in engineering and computer science through distance education for more students across NC
- Tuition grant
- Increased operational funding to support
 - expanded real-world learning and computer science opportunities
 - Health and wellness
 - Development of digital textbooks and PD for NC students





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Enrollment Growth Request 2017-2019

Focus on growing IVC enrollments:

- Earlier access to mathematics for engineering
- Earlier access to computer science applications
- Increased access to fully integrated STEM courses
- Increased access to world class faculty
- STEM enrichment lessons and accompanying curriculum
- Advising for distance education students and partner schools

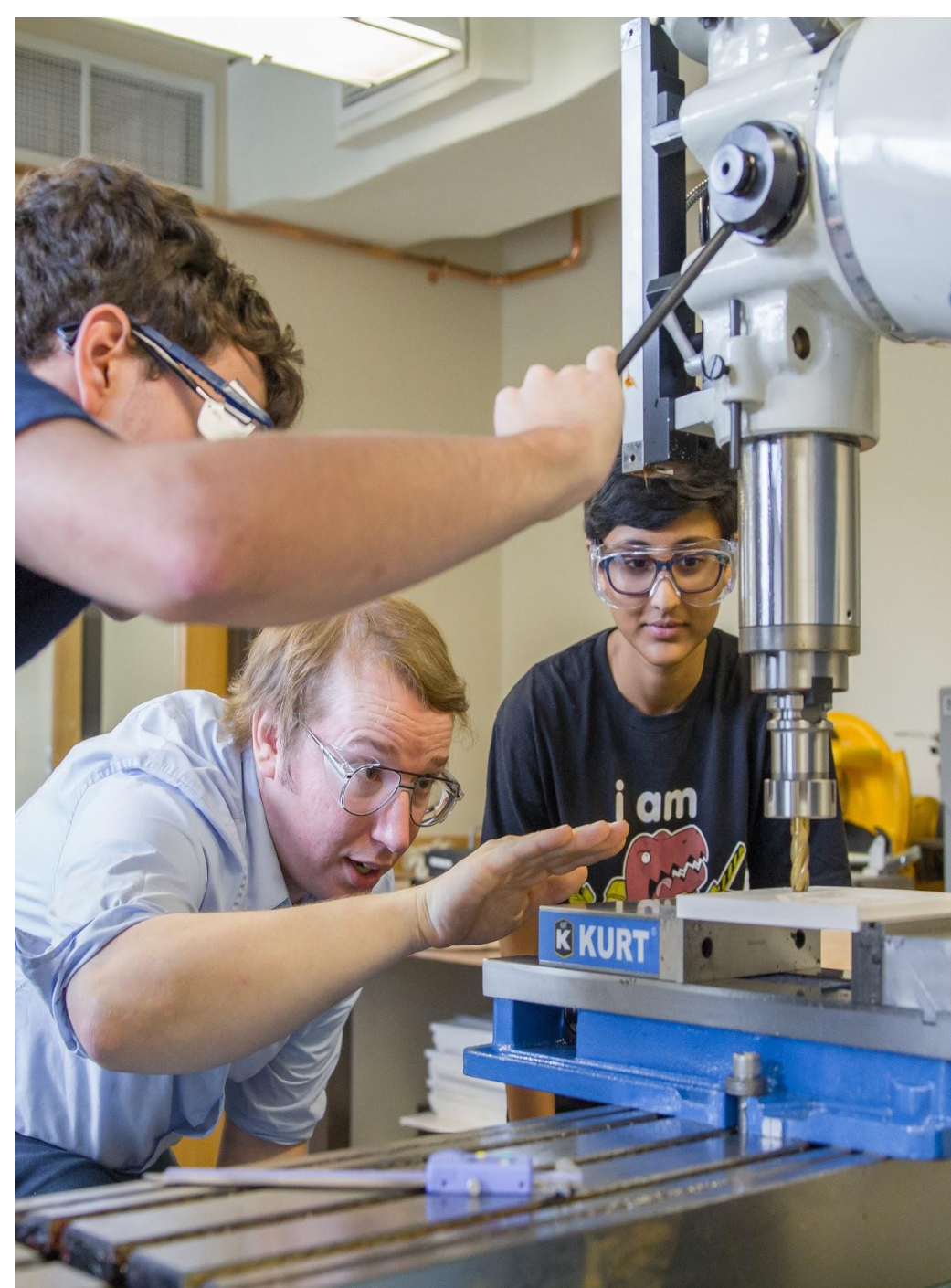




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Real-world Learning Experiences

Each year, through the academic year or during the summer, hundreds of NCSSM students experience hands-on research and work in a wide range of disciplines including research and entrepreneurship with mentors on and off campus.





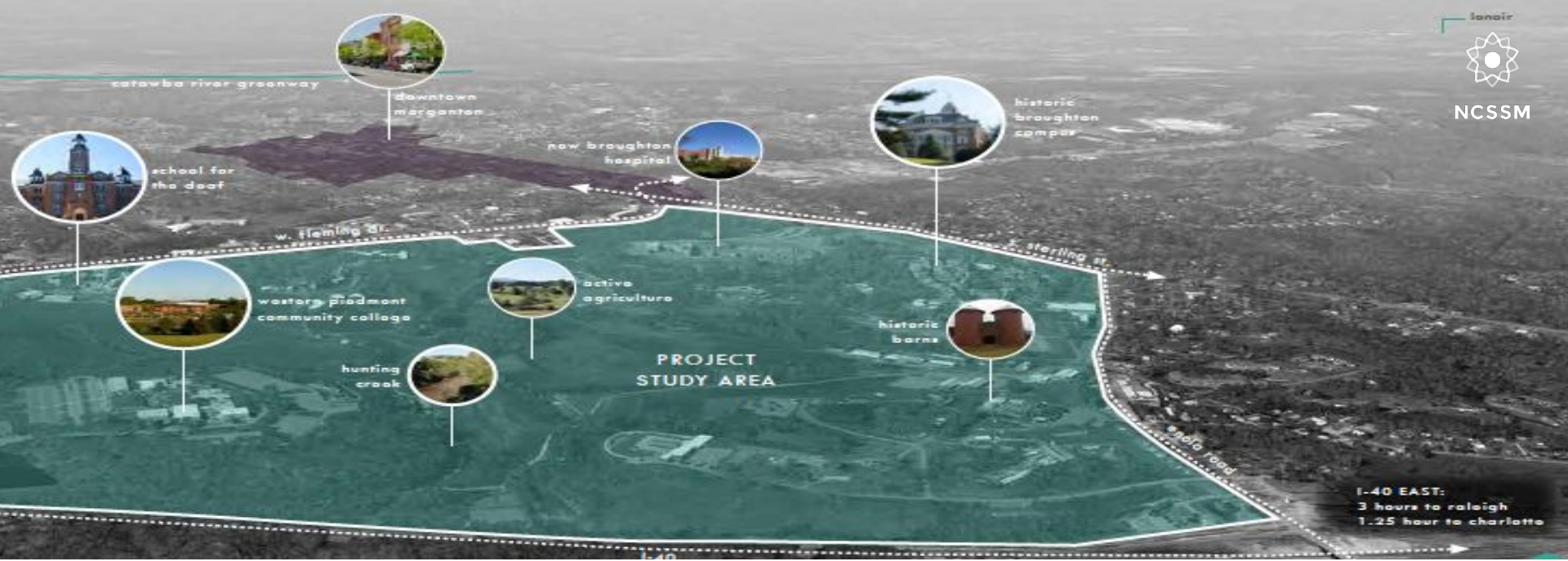
Western Campus Planning Begins

With voters' passage of the 2016 Connect NC bond, NCSSM begins a new chapter as we plan for a second campus in Morganton, NC. We are working with stakeholders and education leaders across the state to plan this new campus, allowing NCSSM to reach still more talented students.



Phase I (2016)

- Duda Paine Architects is selected as the architectural team for the new campus (September 2016).
- Kevin Baxter is hired as the NCSSM Director of Western Campus Planning and Project Management (November 2016).
- The Friday Institute is hired to support the educational program design (November 2016).



Phase II (January - September 2017)

- Core Planning Team constituted to inform site selection and educational program design (January 2017).
- Presentations and focus groups in Durham and Morganton (February - March 2017).
- Surveys distributed to major stakeholder groups (March - April 2017).
- Site visits and research on national models for the delivery of innovative STEM programs (April - May 2017).
- Presentation to NCSSM Board of Trustees (May 2017).
- Presentation of formal recommendations on site selection and educational program design to NCSSM Board of Trustees (September 2017).



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Future Steps (2017-2021)

- Facility design and development process (2017 – 2018)
- Bid process and construction/renovation (2018 – 2021)
- Hiring of faculty and staff (2020 – 2021)
- Deliver summer programs (2021)
- Opening of the Morganton campus to its first class (2021)



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Listen Live [\[More Stream Info\]](#) • WUNC

1A



UNC Leaders Want To Keep More Top Science And Math Students In-State

By JASON DEBRUYN • JAN 19, 2017



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North Carolina School of Science and Mathematics in Durham is part of the University of North Carolina System.

CREDIT NCSSM

University leaders say too many of North Carolina's top high school students choose out-of-state colleges, and they want to do something about it.

Tuition Grant for NCSSM Graduates

- UNC proposal
- beginning for class of 2018
- financial benefit for students but not institution



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NCSSM Facilities:

- 27 acre campus
- 472,977 sq ft
 - 89,995 sq ft built prior to 1927
 - 180,353 sq ft built between 1928-1955
 - 143,759 sq ft built between 1956-1990
 - 58,870 sq ft built since 1990 (last new construction in 1999)
- 126,000 sq ft has been renovated since 1990



Aerial photo taken by Sawyer Wofford '18



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Facilities Improvements 2017-2019

- 2017-19 state budget request:
 - Capital Improvements = \$13,965,000
 - Repair and Renovations = \$5,494,000
- Capital and R&R Priorities:
 - Living space renovations
 - Infrastructure repairs
 - Window replacement
 - Renovations to lab spaces
 - Replace classroom furniture
 - Safety and security upgrades
 - Renovations to auditorium and music suite

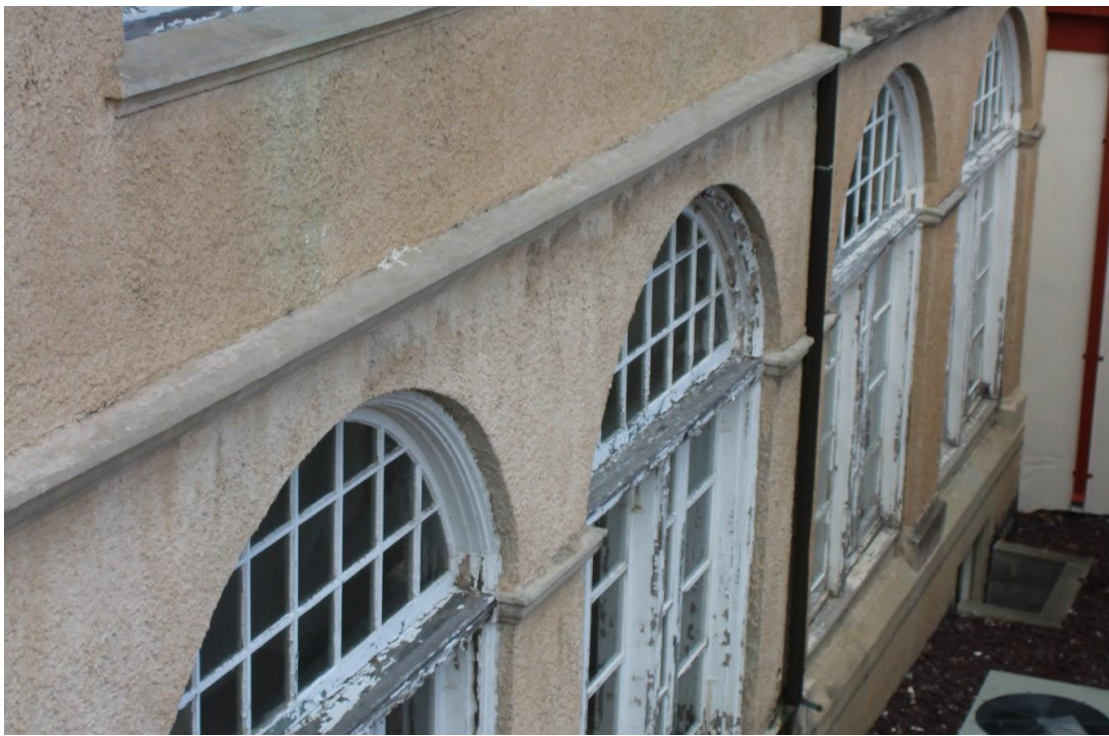




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Dormitory Furniture and Renovation





Exterior Renovation



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Gutters and Roofing Exterior Renovation



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HVAC Systems



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Thank You for Your Service to Our State!