

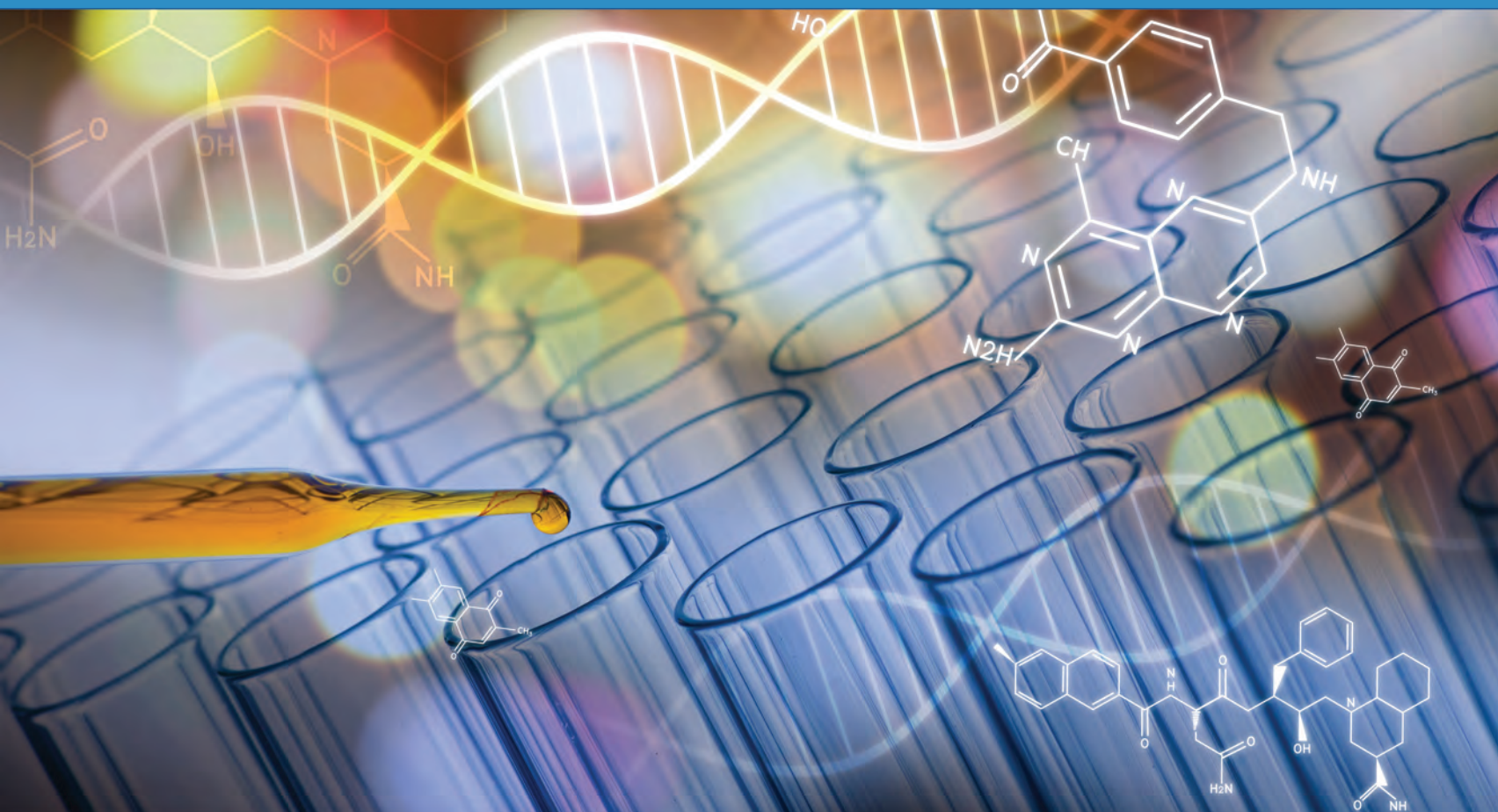


NCSSS

National Consortium of
Secondary STEM Schools

PROFILE AND MEMBER DIRECTORY

2020- 2021



ncsss.org

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NCSSS Profile and Member Directory

History of the Consortium

The National Consortium of Secondary STEM Schools (NCSSS) was established in 1988 to provide a forum for specialized secondary schools focused on science, technology, engineering, and mathematics (STEM) disciplines to exchange information and program ideas.

The initial thrust to establish a national organization came from four schools: North Carolina School of Science and Mathematics; Thomas Jefferson High School for Science and Technology (VA); Louisiana School for Mathematics, Science, and the Arts; and the Illinois Mathematics and Science Academy, who were joined by 11 additional schools from across the country to establish the Consortium.

Celebrating our 30th anniversary in 2018, the Consortium now includes approximately 80 member schools (high schools), many 'ranked' as the best in the country, along with 30 affiliate members (colleges, universities, and summer programs) located in 32 states, that share the goals of transforming mathematics, science, and technology education. The Consortium has expanded membership in 2016 to include international members and corporate members.

The NCSSS mission is to advance STEM education by providing professional development and networking opportunities for educators and learning experiences for students; to serve as a national resource for STEM schools and programs in partnership with educational, corporate, and international organizations; and to inform policymakers on STEM education.

Our vision is to serve as the resource for secondary STEM schools by supporting collaboration and knowledge sharing and providing professional development for teachers and administrators to positively impact student achievement in authentic STEM educational environments.

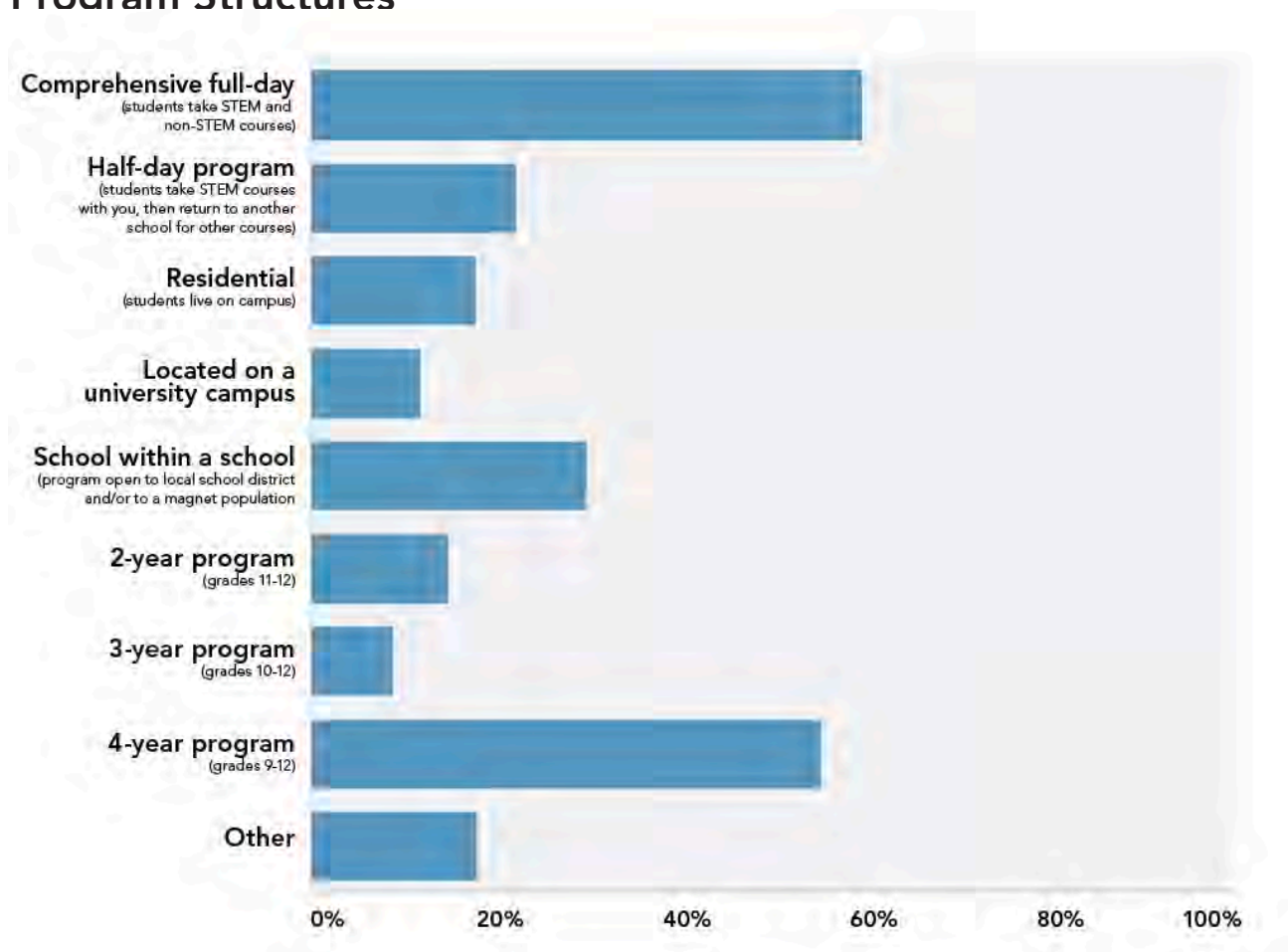
NCSSS, a 501c3 non-profit organization, holds programs and events to develop STEM talents for students, educators, and administrators. Our annual Professional Conference provides professional development opportunities to member and nonmember educators. Our annual Summer Student Research Conference draws participants from Consortium schools across the country, where students meet to share their research projects. Administrators gather every summer to share ideas with colleagues from across the U.S. at our annual Administrators Summit.

Consortium publications include a monthly newsletter and the STEM Edge magazine released quarterly. The true value of NCSSS is the incredible depth of teaching and educational leadership experience held among the member schools and affiliate organizations.

For more than a quarter century, Consortium members have worked with dedication and passion to provide resources to STEM educators and students. We invite STEM-focused schools, organizations, foundations, corporations, international organizations, and individuals to apply for Consortium membership. Membership criteria and our membership application may be found at www.ncsss.org.

This Membership Profile includes an overview of the Consortium. The diversity of structures within the Consortium is one of our greatest strengths. There is no one way to provide a world-class STEM education – programs offered must be developed to meet the needs of the community and stakeholders. Still, there are trends worth noting from the most recent member survey conducted two years previously.

Consortium Schools Deliver STEM to Students in a Variety of School Program Structures



Student Population and School Size

Consortium schools range in size as the largest serves a population of over 3,000 students and the smallest has just over 100 students. Approximately three-quarters of Consortium schools have 50% or greater female enrollment. Almost a third of Consortium schools have 25% or more students on free and reduced lunch.

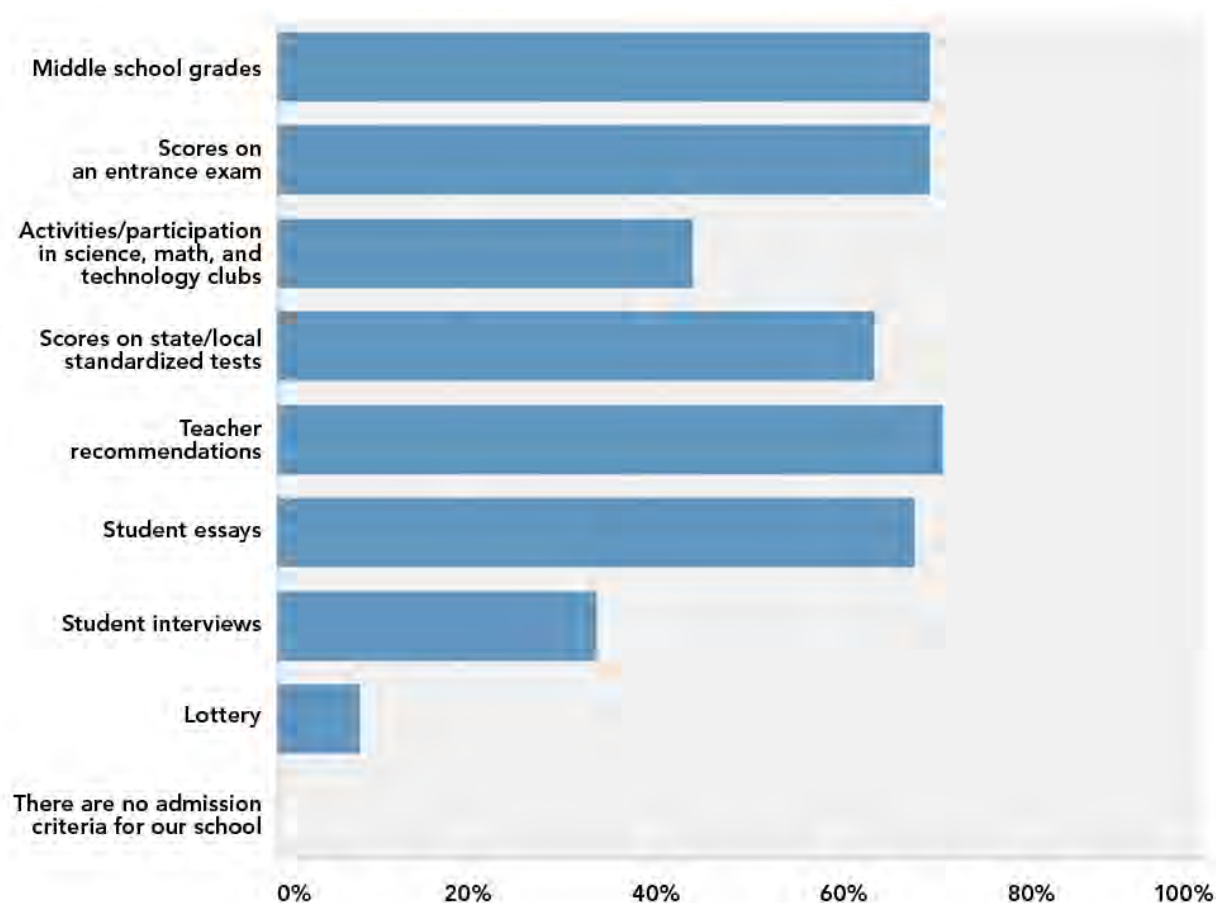
Consortium Students are High-Performing in SAT and ACT

- Average student SAT Math score is 663.4 – US average is 514
- Average student SAT Verbal score is 639 – US average is 496
- Average student ACT score is 29 – US average is 21

Admission Rigor at Consortium Schools

Admission requirements for Consortium schools are highly selective. About half of Consortium schools admit less than 50% of their applicants; one-third of schools admit 25% or less of their applicants.

A majority of schools use a combination of middle school grades, teacher recommendations, entrance exams, and student essays to determine admission.



Scholarship Opportunities at Consortium Schools

Creating a challenging and creative learning venue, Consortium schools attract the highest performing and motivated students with significant scholarship awards. Member schools offer both merit- and needs-based packages. Awards range in amount from school to school. Most schools grant full and partial awards. The majority of awards are merit-based, attesting to the high ability of students.

Consortium Students Post-Secondary Path

Virtually all students move on to a four-year college career at their school of choice. Nearly 100% of Consortium schools send their students to four types of colleges/universities – Ivy League, highly competitive national universities/colleges, public universities, and private universities. 93% of Consortium members graduate students that attend Ivy League schools and 96% have graduates that attend highly competitive national colleges/universities.

INSTITUTIONAL MEMBERS

ALABAMA

Alabama School of Fine Arts-Russell Math & Science Center
Alabama School of Math and Science

ARKANSAS

Arkansas School for Mathematics, Sciences and the Arts

DELAWARE

The Charter School of Wilmington

FLORIDA

Florida Atlantic University High School

GEORGIA

The Center for Advanced Studies in Science, Math, and
Technology at Wheeler High School
Gwinnett School of Mathematics, Science, and Technology
Rockdale Magnet School for Science and Technology

ILLINOIS

Illinois Mathematics and Science Academy
Wheeling High School

KANSAS

Kansas Academy of Mathematics and Science

KENTUCKY

Craft Academy at Morehead University
Gatton Academy of Mathematics and Science in Kentucky

LOUISIANA

Benjamin Franklin High School
Louisiana School for Math, Science, & the Arts
Patrick F. Taylor Science and Technology Academy

MAINE

Maine School of Science and Mathematics

MARYLAND

Anne Arundel County Public Schools - South River High School
Baltimore Polytechnic Institute
Eleanor Roosevelt Science and Technology Center
The Ingenuity Project
Baltimore Polytechnic Institute
Hamilton Elementary/Middle School
Mount Royal Elementary/Middle School
Roland Park Elementary/Middle School
Montgomery Blair High School Science, Mathematics & Computer
Science Magnet Program
Oxon Hill Science & Technology Center
Poolesville High School – A Whole School Magnet
Science and Mathematics Academy at Aberdeen High School

MASSACHUSETTS

King Philip Regional High School
Massachusetts Academy of Mathematics & Science at Worcester
Polytechnic Institute
Nipmuc Regional High School
Uxbridge High School

MICHIGAN

Battle Creek Area Mathematics & Science Center
Berrien County Math & Science Center
Kalamazoo Area Mathematics & Science Center
Lakeshore High School Math/Science Center

MISSISSIPPI

Mississippi School for Mathematics & Science

MISSOURI

Rockhurst High School
St. Teresa's Academy

NEW HAMPSHIRE

The Academy for Science and Design

NEW JERSEY

Academy of Allied Health & Science- Monmouth County Vocational
School
Bergen County Academies
Biotechnology High School
High Technology High School
Marine Academy of Science & Technology
Marine Academy of Technology and Environmental Science
(OCVTS)
Math and Science Magnet Program at Morris Hills
The Academy for Mathematics, Science and Engineering

NEW YORK

The Bronx High School of Science
Brooklyn Technical High School
High School for Math, Science and Engineering at The City College
Hunter College High School
Millennium Brooklyn High School
Stuyvesant High School

NORTH CAROLINA

North Carolina School of Science & Mathematics

OHIO

Hathaway Brown School

OKLAHOMA

Oklahoma School of Science and Mathematics at Ardmore Regional
Center

PENNSYLVANIA

Downington STEM Academy

SOUTH CAROLINA

Dutch Fork High School
South Carolina Governor's School for Science & Mathematics
Spring Valley High School

TEXAS

Academy for Careers in Engineering and Science
Academy for Science & Health Professions Conroe ISD
Academy of Science & Technology Conroe ISD
John Jay Science & Engineering Academy
Liberal Arts and Science Academy of Austin at LBJ HS (LASA)
School of Science and Engineering
Texas Academy of Math and Science

UTAH

SUCCESS Academy at Dixie State University - DSU
SUCCESS Academy at Southern Utah University - SUU

VERMONT

Essex High School

VIRGINIA

Academies of Loudon
Central Virginia Governor's School for Science and Technology
Chesapeake Bay Governor's School for Marine & Environmental
Science
Governor's School @ Innovation Park
New Horizons Governor's School for Science and Technology
Shenandoah Valley Governor's School
Southwest VA Governor's School for Science, Mathematics
& Technology
The Mathematics & Science High School at Clover Hill
Thomas Jefferson High School for Science and Technology

WASHINGTON

Camas Academy of Math and Science

ALABAMA

Alabama School of Fine Arts-Russell Math & Science Center

1800 Rev Abraham Woods Jr. Blvd.
Birmingham, AL 35203
205.252.9241



Head of school: Dr. Michael Meeks Executive Director mmeeks@asfa.k12.al.us

Primary contact: Hungsin Chin hchin@asfa.k12.al.us

Website address: www.asfa.k12.al.us

Total students enrolled: 100 (19 seniors)

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Part residential and commuters
School within a school (program open to local school district and/or to a magnet population)
5-year program (grades 8-12)

PROGRAMS OFFERED

Unique Offerings: The Alabama School of Fine Arts (ASFA) offers instructions in six specialty areas: Creative Writing, Dance, Math & Science, Music, Theatre, and Visual Arts. Students of the Math and Science specialty program of the Russell Math & Science Center at ASFA follow a diverse and enriched curriculum that promotes creative and critical thinking with an appreciation for the arts. As members of the artistic community, students have opportunities to attend various performances offered by the five fine arts programs throughout the year. As part of the graduation requirements, students in this specialty program take three arts electives offered by the five fine arts specialty programs. In addition, students are required to complete a senior research project which includes a poster session and an oral presentation/defense at the Senior Research Symposium. To complete this research experience, students are also required to submit a five chapter research thesis of their projects. Senior students, involved in individual in-depth research projects, are mentored each year by scientists and experts in the respective fields. These collaborations are offered by in-state and out-of-state industry organizations and educational institutions like University of Alabama, University of Alabama at Birmingham, Birmingham Southern College and Georgia Institute of Technology

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, AP Calculus AB, AP Calculus BC, Statistics, Linear Algebra, Differential Equations, Discrete Math, Abstract Algebra, Art of Problem Solving, Quantitative Finance, Applied Math

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, Organic Chemistry, Space Science, Earth Science, Marine Biology

Technology Courses/Electives: Introduction to Engineering

Research Courses/Electives: Research I & II

Computer Science Courses/Electives: AP Computer Science Principles, C/Linux Programming, C++/Linux, AP Computer Science A, Make-It with Computing, Advanced Topics in Computer Science

Dual Enrollment: Yes – at the college/university, taught by college/university staff

Participation in National Academic Competitions: American Mathematics Competition, American Invitational Mathematics Exam, Mu Alpha Theta National Convention, Science Olympiad, Science Bowl, Regeneron Science Talent Search, Intel Science and Engineering Fair, North American Computational Linguistics Olympiad, American Computer Science League

Scholarship Awards: \$4,117,596

Alabama School of Math and Science

1255 Dauphin St.
Mobile, AL 36604
admissions@asms.net
251.441.2100



Head of school: Monica Motley, Ph.D. mmotley@asms.net

Primary contact: John Hoyle jhoyle@asms.net 251.441.2128

Website address: www.asms.net

Total students enrolled: 240

School structure: Residential (students live on campus)
3-year program (grades 10-12)

INSTITUTIONAL MEMBERS

PROGRAMS OFFERED

Unique Offerings: Alabama School of Math and Science (ASMS) students are given the opportunity to earn college credit accepted by many institutions, including the University of South Alabama, the University of Alabama, and the University of Alabama at Birmingham, among others. ASMS faculty also design and offer classes based on student interests, which include Directed Reading and Directed Research courses. Directed Reading courses are typically intended for students who seek a deeper knowledge of the subject. Directed Research courses involve intensive investigation of a topic or subject, taken under the direction of a faculty member who mentors the student's research. Here are a few Directed Reading and Research courses that have been offered in recent history: Crystallography, Ornithology, Pyrotechnics, Problem Solving, Boolean Algebra, Topology, and Mathematical Origami. ASMS is the only high school in Alabama with active cultural study abroad programs in Münster, Germany, and in Seville, Spain. Both programs offer a direct immersion exchange with the prestigious Gymnasium Paulinum in Münster and the Europa International School in Seville.

Math Courses/Electives: Geometry I and II, Intermediate Algebra, Accelerated Algebra, Trigonometry, Precalculus, Differential Calculus, Integral Calculus, BC Calculus, Multivariable Calculus I and II, Differential Equations, Number Theory, Linear Algebra, Counting & Probability I and II, Topology, Complex Analysis, Intro to Statistics, Visual Mathematics, Problem Solving, and AP Calculus Review.

Science Courses/Electives: AP Biology, AP Chemistry, Physics, AP, Environmental Science, AP Physics B and C, Honors Physics, Aerodynamics, Astronomy, Organic Chemistry, Biochemistry, Zoology, Genetics, and Anatomy & Physiology

Technology/Computer Science Courses/Electives: AP Computer Science, C#, Computer Science Principles, Introduction to Programming with Alice, Java, Mechatronics, Mechanical Engineering, and Virtual Reality Modeling Language

Dual Enrollment: Yes – At school, taught by school staff and college/university staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computational Linguistics Olympiad, First Robotics, or other robotics competitions

Scholarship Awards: \$7.7 million

ARKANSAS

Arkansas School for Mathematics, Sciences and the Arts

200 Whittington Ave.
Hot Springs, AR 71901
501.622.5100

Head of school: **Corey T. Alderdice** Director alderdicec@asmsa.org 501.622.5115

Website address: **www.asmsa.org**

Total students enrolled: 230

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Residential (students live on campus)
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: ASMSA enjoys opportunities to collaborate with fellow campuses of the University of Arkansas. In particular, our "Concurrent Core" curriculum allows students to earn at least forty hours of college credit during their two-year program of study at ASMSA. UofA campuses also assist in research programs and outreach experiences. The Fundamentals in Research Methods (FRIM) sequence is a four semester program that guides students through the process of research and knowledge development. FRIM is designed to teach students about the research process and to apply that process to their own project. All experimental projects are chosen from one of the following categories: behavioral and social sciences, biochemistry, botany, chemistry, computer science, earth and space sciences, engineering, environmental science, mathematics, medicine and health, microbiology, physics and zoology. During their senior year, students continue to develop their research methods and applications. Students ready themselves for the presentation of their projects including mock presentations and critiques from their advisors. Our innovative and challenging curriculum will give students the opportunity to discover their intellectual and individual passions. Our world class faculty will guide learners through the fascinating world of science, applied technology and research. Students are also able to take captivating elective courses such as Robotics, Quantum Mechanics, Astrophysics, Immunology, Artificial Intelligence, Graphic Design and Documentary Films. All of our courses promote creative thinking and problem solving.

Math Courses/Electives: Algebra II, Trigonometry, Pre-Calculus, Calculus, Calculus options include a concurrent credit equivalent of Calculus AB or Business Calculus, Statistics (AP or other), Multivariable Calculus, Linear Algebra, Differential Equations, Discrete

Math, Chaos Theory, History of Mathematics, Vector Calculus, Math Modeling, Foundation of Higher Mathematics, Number Theory, Advanced Geometry, Applied Complex Analysis, Game Theory

Science Courses/Electives: Biology, Chemistry, Physics, Earth Science, Environmental Science, American Folk Music and Acoustics, Astronomy, Astrophysics, Earth Systems Science, Global Change, Oceanography, Organic Chemistry, Biochemistry, Analytical Chemistry, Anatomy and Physiology, Zoology, Neurobiology, Basic Genetics, Developmental Biology, Botany, Immunology, Optics, Thermodynamics

Technology Courses/Electives: Intro to Engineering Design, Circuits, Intro to Artificial Intelligence and Robotics, Modern Materials Manufacturing, Introduction to Computer Networking, Oracle Database

Research Courses/Electives: Design and Analysis (DnA) Junior Fundamentals in Research Methods Senior Fundamentals in Research Methods

Computer Science Courses/Electives: One course in Computer Programming (Java, Python, or C++), Java, C++, Python, Oracle

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, Computational Linguistics Olympiad, First Robotics, or other robotics competitions

Scholarship Awards: \$10,000,000

DELAWARE

The Charter School of Wilmington

100 N. DuPont Road
Wilmington, DE 19807

Website address: www.charterschool.org

FLORIDA

Florida Atlantic University High School

777 Glades Road
Boca Raton, FL 33431

Website address: www.fauhigh.fau.edu

GEORGIA

The Center for Advanced Studies in Science, Math, and Technology at Wheeler High School

375 Holt Road
Marietta, GA 30068

Head of school: **Christian Barnes** Interim Magnet Coordinator christian.barnes@cobbk12.org

Primary contact: **Stacy Regitsky** Magnet Program Advisor stacy.regitsky@cobbk12.org
770.578.3286

Website address: **www.wheelermagnet.com**

Total students enrolled: **526**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
School within a school (program open to local school district and/or to a magnet population)
4-year program (grades 9-12)



STEM & STEAM Certified by the state of Georgia

PROGRAMS OFFERED

Unique Offerings: All students must complete a STEM or STEAM Track. We have an advanced program of courses that require AP courses as prerequisites. These courses are: Advanced DNA/Genetics, Chemical Engineering, Advanced Physics/Robotics, Aerospace Engineering, Advanced Scientific Research, Advanced Scientific Internship, Georgia Tech Linear Algebra (Distance course), Georgia Tech Multivariable Calculus (Distance course), Georgia Tech Genetics (Distance course) Georgia Tech Organic Chemistry (Distance Course)

Math Courses/Electives: Algebra I, Geometry, Algebra II, Pre-Calculus, AP Calculus AB, AP Calculus BC, AP Statistics, Multivariable Calculus
Science Courses/Electives: Magnet Biology, AP Biology, Magnet Chemistry, AP Chemistry, AP Physics C: Mechanics, AP Physics C: E&M, AP Physics I, AP Physics II, AP Environmental Science

Science Courses/Electives: Biology, AP Biology, Chemistry, AP Chemistry, Physics, AP Physics C: Mechanics, AP Physics C: E&M, AP Physics I, AP Physics II, AP Environmental Science

Technology Courses/Electives: Therapeutic Services Emergency Medical Responder, Audio, Video Technology & Film, Architectural Drawing and Design, Engineering Drafting and Design, Web & Digital Design, Computing, Engineering & Technology, Plant and Landscape System, Journalism, Visual Art, Drama, Music, Culinary Arts, Sports & Marketing

Research Courses/Electives: Research III, Advanced Scientific Research

Computer Science Courses/Electives: AP Computer Science Principles, AP Computer Science (Java), MatLab

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Distance Learning: Yes

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, First Robotics, or other robotics competitions

Gwinnett School of Mathematics, Science, and Technology

970 McElvaney Ln NW
Lawrenceville, GA 30044

Head of school: **IV Bray** Principal IV_Bray@Gwinnett.k12.ga.us 678.518.6700

Website address: **www.gsmst.org**

Total students enrolled: **1,100**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)



PROGRAMS OFFERED

Unique Offerings: The Gwinnett School of Mathematics, Science, and Technology Partnership Program

9th Grade [Speaker Series] - The purpose of the Speaker Series is to expose our 9th grade students to the vast array of careers within the STEM fields. Four times per year speakers from partnering organizations (industry, university, corporate, government, etc.) are invited to the school to spend time with a small group of students who have expressed prior interest in the speaker's

particular area of expertise. **10th Grade** [STEM Site Visits & Job Readiness Workshops] - Phase two of the Partnership Program involves our 10th grade students participating in on-site job shadow events. Students travel to a business/corporate/university partner locations and experience the daily routine of an assigned employee for two to four hours. The job shadow events introduce students to business etiquette, protocols, and requirements common to an industry. This phase also gives students an idea of which internship they would like to pursue the following year. **11th Grade** [Junior Fellowship Experience] - During their 11th grade year, our students participate in JFE. This program partners university and industry experts with our students to complete in-depth work assignments and projects. These internships are a graduation requirement for GSMST students and adhere to strict requirements regarding rigor, time commitment, and use of STEM skills. Students can choose to participate in an experience from one of five options including internship, research, service learning, leadership, or specialized dual enrollment programs (e.g. Cyber Security). The time-frames are either summer, short-term (one semester), or long-term (yearlong). **12th Grade** [Senior Capstone Experience] - Upon completion of the JFE, our students complete SCE. These Senior Capstone projects involve extensive research and industry experience normally reserved for graduate students. At the conclusion of the SCE students present their senior portfolio to a panel of judges and underclassmen. Students are able to choose from multiple options for their SCE, including internships and independent projects. All SCE projects are yearlong.

Math Courses/Electives: Accelerated Algebra, Accelerated Geometry, Accelerated Pre-Calculus, AP Calculus AB & BC, AP Statistics, Multivariable Calculus, Differential Equations, Number Theory

Science Courses/Electives: Chemistry, Physics, AP Biology, AP Chemistry, AP Physics, AP Environmental Science, Analytical Forensic Investigation

Technology Courses/Electives: Foundations/Concepts/Applications of Engineering, Nanotechnology, Robotics, 3-D Modeling, AVTF

Research Courses/Electives: GSMST Science and Engineering Fair Project / Research Course; JFE, SCE; AP Seminar Computer Science Courses/Electives: AP CS Principles, AP CS Programming, Linear Algebra & Python

Dual Enrollment: Yes

Online Courses: Yes

Distance Courses: Yes

Participation in National Academic Competitions: VEX & First Robotics; National Examinations for Biology, Chemistry, Physics; WorldQuest

Rockdale Magnet School for Science and Technology

930 Rowland Road
Conyers, GA 30012

Head of school: **Amanda Baskett** Director
abaskett@rockdale.k12.ga.us 770.483.8737

Website address: **www.rockdalemagnetschool.com**

Total students enrolled: **330**

School structure: School within a school (program open to local school district and/or to a magnet population)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Rockdale Magnet School for Science and Technology (RMSST) was established in the fall of 2000 as a partnership between Rockdale County Public Schools in Conyers, Georgia and the College of Engineering at the Georgia Institute of Technology in Atlanta, Georgia. Our mission is to foster and produce students who think ethically, critically, and independently while excelling in competitive academic environments and demonstrating high standards and expectations distinguished by rigorous, accelerated curriculum, four years of student-driven scientific research, personalized academic support and advisement, academic extracurricular activities, leadership and service opportunities, and dedicated family and community involvement.

RMSST Research Curriculum - Students are involved in individual, in-depth research projects each year in student-selected areas of Math, Science, Engineering, or Technology. These investigations are carried out under the supervision of RMSST faculty and mentors from various universities, businesses, and government agencies. RMSST students present an oral defense of their research projects to school and community members at the Annual Student Showcase and compete in regional, state, national and international science fairs.

RMSST Scientific Internship Program - Provides senior students with real-world experiences in their area of interests, real-world applications that are directly linked to the Magnet curriculum, research experience in an on-site lab or work-related project, skills related to a specific occupation, and exposure to equipment and procedures involved in a specific occupation.

INSTITUTIONAL MEMBERS

Math Courses/Electives: Analytic Geometry, Accelerated Geometry and Advance Algebra, Pre-calculus, AP Calculus AB, AP Calculus BC, Statistics (AP or other), Multivariable Calculus, Discrete Math, History of Mathematics, Mathematics in Industry and Government, Advance Finite Mathematics

Science Courses/Electives: Foundations of Engineering and Technology, Computer Programming, Engineering Concepts, Engineering Applications, Senior Engineering Design

Technology Courses/Electives: Foundations of Engineering and Technology, Computer Programming, Engineering Concepts, Engineering Applications, Senior Engineering Design

Research Courses/Electives: Research I, II, III, IV

Computer Science Courses/Electives: AP Computer Science Principles, AP Computer Science

Dual Enrollment: Yes, Move on When Ready

Participation in National Academic Competitions: American Mathematics Competition, Atlantic-Pacific Math League Contest, BEST Robotics Competition, BioGENEius Challenge, Envirothon Competition, Georgia Science and Engineering Fair, Georgia Junior Science and Humanities Symposium (GJSJS), Georgia Tech K12 Inventure Prize, Regeneron Science Talent Search, International Science and Engineering Fair, International Sustainable World Olympiad, Mandelbrot Contest, NCSSS Student Research Symposium, Regional Science and Engineering Fair

Scholarship Awards: \$10,302,867

ILLINOIS

Illinois Mathematics and Science Academy

1500 Sullivan Road
Aurora, IL 60506-1000

Head of school: **Dr. José M. Torres** President jtorres@imsa.edu
630.907.5000

Primary contact: **Dr. Robert Hernandez** Principal 630.907.5069

Website address: **www.imsa.edu**

Total students enrolled: **652**

School structure: Residential (students live on campus)
3-year program (grades 10-12)



PROGRAMS OFFERED

Unique Offerings: Student Inquiry and Research (SIR) is a program that teaches IMSA student how to carry out authentic research. SIR is a program intended to instruct students in the methods and methodology of doing research. Regardless of the discipline in which students learn these skills, they will be invaluable in developing the ability to extrapolate from the things that are known to the things that are not using a combination of logic and experimentation. The IMSA Internship program connects students with on-campus or off-campus with professional business, technology and/or entrepreneurial mentors. The goal of the IMSA Internship program is to provide opportunities for students to carry out industry, business or product focused projects of inquiry/investigation under the guidance of the professional mentor.

Math Courses/Electives: Computer Science Inquiry, Object Oriented Programming, Web Technologies, Advanced Programming, Microcontroller Applications (CS), Advanced Web Technologies, CS Seminar: Security and Android Apps, Independent Study in Computer Science, Geometry I/II, Mathematical Investigations I/II, Mathematical Investigations II, Mathematical Investigations III, Mathematical Investigations IV, AB Calculus I, AB Calculus II, BC Calculus I, BC Calculus II, BC Calculus III, BC Calculus I/II, BC Calculus II/III, Modern Geometries, Statistical Exploration and Description, Statistical Experimentation & Inference, Number Theory, Discrete Mathematics, Multi-Variable Calculus, Theory of Analysis, Differential Equations, Introduction to Algebraic Structures I, Introduction to Algebraic Structures II, Advanced Topics in Mathematics

Science Courses/Electives: Scientific Inquiries - Chemistry, Scientific Inquiries - Physics, Scientific Inquiries - Biology, Methods in Scientific Inquiry, Adv. Chemistry--Structure and Properties, Advanced Chemistry--Chemical Reactions Organic Chemistry I, Organic Chemistry II, Biochemistry, Environmental Chemistry, Microcontroller Applications (Science), Physics: Sound and Light, Physics: Calculus-based Mechanics, Physics: Calculus-based Elec & Magnetism, Planetary Science, Modern Physics, Engineering, Biophysics, Computational Science, Advanced Biological Systems, Evolution, Biodiversity, and Ecology, Molecular and Cellular Biology, Microbes and Disease, Physiology and Disease Seminar in Biology: Molecular Bio Lab, Independent Study in Science, Independent Study in Chemistry, Independent Study in Physics, Independent Study in Biology

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, First Robotics, or other robotics competitions

Wheeling High School

900 S. Elmhurst Road
Wheeling, IL 90090

Head of school: **Jerry Cook** Principal Jerry.Cook@d214.org 847.718.7010

Primary contact: **Thomas Steinbach** thomas.steinbach@d214.org

Website address: **www.d214.org**

School structure: Comprehensive high school with a STEM focus



PROGRAMS OFFERED

Career & Technical Courses: 3D Design & Modeling, Civil Engineering & Architecture, Aerospace Engineering, Industrial Robotics, Cyber Security, Engine Diagnostics, CNC Machining & Industrial Manufacturing

Unique Offerings: Wheeling High School offers a comprehensive education based on student inquiry and practical experience. All curricular disciplines are incorporated including the arts, languages, and humanities alongside a focus on career certifications, college partnerships, and technology to prepare students for post secondary opportunities.

Math Courses/Electives: Algebra 50, 60, 70, Honors Advanced Algebra, Geometry 60s and 70s, Honors Geometry, Algebra 2, Advanced Algebra, Honors Pre-Calculus, Accelerated Honors Pre-Calculus, AP Calculus, AP statistics, Calculus 3

Science Courses/Electives: Biology, Honors Biology, AP Biology, Chemistry, Honors Chemistry, AP Chemistry, Physics, Honors Physics, AP Physics1, AP Physics C, AP Environmental Science, Zoology, Oceanography, Human Physiology, Introduction to Nano science

Technology Courses/Electives: Design and Modeling, Magic of Electrons, Automation and Robotics

Computer Science Courses/Electives: Computer Repair A+ Certification, Computer Science and Software Engineering- PLTW, Computer Programming I, AP Computer Science, Web Site Programming

Programs of Study/Pathways: International Business, Information Technology, Engineering / Architecture, Industrial / Manufacturing, Health Sciences, Communications, Environmental / Agricultural, Human Sciences and Resources

Dual Enrollment: At the college level and offered within and outside of the building

KANSAS

Kansas Academy of Science and Mathematics

Fort Hays State University
600 Park St.
Hays, KS 67601

Head of school: **Dr. Roger W. Schieferecke** Executive Director of Early College Programs
rwschieferecke@fhsu.edu 785.628.5973

Primary contact: kams@fhsu.edu 785.628.4690

Website address: **www.fhsu.edu/kams**

Total students enrolled: 90

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Residential (students live on campus)
Located on a University campus
School within a school (program open to public schools)
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: Our students are required to participate in undergraduate research with a university faculty member serving as a mentor. Students are also required to present their research in a public fashion.

Our students compete in various competitions including mathematics, programming, physics, engineering, writing, research, etc.

Math Courses/Electives: All college-level pre-calculus, Calculus I and Calculus II, differential equations, multivariate calculus, linear algebra, & statistic

Science Courses/Electives: All college-level biology, chemistry, calculus-based physics, geosciences

Technology Courses/Electives: College-level Computer Programming I & II, Java, Data and File Structure, Desktop Publishing

Research Courses/Electives: Undergraduate research course & independent research

Computer Science Courses/Electives: Java, Open Source/Linux, Oracle

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: AMC, First Robotics, USAYPT

KENTUCKY

Craft Academy at Morehead University

150 University Blvd.
Grote-Thompson Hall
Morehead KY 40351
606.783.2093 | Fax : 606.783.9195

Contact: Dr. C. Christian c.christian@moreheadstate.edu

Website address: www.moreheadstate.edu/craft-academy

Total students enrolled: 120

School structure: (2) year residential dual credit opportunity for selected juniors and seniors with a STEM career focus on the campus of Morehead State University



The Craft Academy for Excellence in Science and Mathematics at Morehead State University is a prestigious dual credit residential high school opportunity for (120) gifted youth from across the Commonwealth of Kentucky. The Craft Academy is home to a diverse population of 120 students (60 males, 60 females) that range in age from 15-18. Students considered for selection must have a minimum ACT score of: 22 in Math, 18 in English and 21 in reading. Selected students complete their junior and senior years of high school on the campus of Morehead State University while simultaneously receiving 15-18 college credit hours per term.

Advanced curricular offerings including AP/IB dual credit enrollment opportunities:

- Craft Academy students are afforded dual credit college courses. AP credit is accepted that can advance students into higher level college courses.
- Craft Academy has a unique curricular emphasis, along with STEM, that includes a +X focus. The three components of STEM+X include: Entrepreneurship and Innovation; Creativity and Design and Civic and Regional Engagement. Students will learn to take their STEM knowledge to a higher level of application through the +X components that allows students to “Imagine, Invent and Impact” their fields of study through in depth research. Students also have the opportunity to create prototypes that can lead to inventions in their work with professors and in their ability to access our Maker Space area located in the residence hall.
- In addition, a study abroad experience is provided at the end of the junior year. Travelers have explored renewable energy in Germany and Switzerland, business and Industry in Ireland, foreign language immersion in China and the third class will travel to Italy.

Project research requirements/offerings:

During the Craft Academy experience, students are encouraged to be involved in research with university professors. The academy, in its second year and first graduating class in May, 2017 has involved many students in ground breaking research. Examples include; archeological research of ancient Mayan Ruins in Mexico using drone technologies, the new frontier of exomedicine by placing biological experiments on the International Space Station and integrating sensor technology into modified clothing for people in wheel chairs, research in isolating and understanding a variety of bacteria phage.

Our first year of Craft Academy graduates have received acceptance offers from: MIT, Georgetown University in D.C., Tulane, Cornell, University of Cincinnati, University of Louisville, University of Kentucky, Vanderbilt, Boston College, Western Kentucky University, Eastern Kentucky University, Morehead State University, Tennessee, and University of Alabama Huntsville. Interviews are completed or pending with: Harvard, Stanford and Yale. Applications pending include: Penn State, and Northwestern.

To date, our student scholarship amount is \$ 3-3.5 million.

Gatton Academy of Mathematics and Science in Kentucky

1906 College Heights Blvd. #71031
Bowling Green, KY 42101
270.745.6565



Head of school: Lynette Breedlove Director

Website address: www.wku.edu/academy

Total students enrolled: 126

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Residential (students live on campus), Located on a University campus
2-year program (grades 11-12)

PROGRAMS OFFERED

Unique Offerings: Study abroad - England, Europe, China, Costa Rica during winter and summer terms, Strong opportunities in research with WKU professors, Various research conferences in state and nationally Summer research/internship grants

Math Courses/Electives: Trigonometry, Calculus, Students must complete minimally through Calc II, Trigonometry Statistics (AP or other), Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math, The full course selection through WKU

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science

Technology Courses/Electives: Electrical, Mechanical, and Civil Engineering courses through WKU

Research Courses/Electives: Our students may choose to do research projects with any professor on campus. Some departments require a lab tech certification

Computer Science Courses/Electives: Computer Science I (Java-based) and Computational Problem-Solving (Mathematica-based), additional courses in CS available through the university

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, Search American Mathematics Association Competition, Biology Olympiad, Knowledge Masters Open, Math Madness Competition

Scholarship Awards: \$4 million

LOUISIANA

Benjamin Franklin High School

2001 Leon C. Simon Blvd.
New Orleans, LA 70122
(504) 286-2600

Head of school: Dr. Patrick Widhalm pwidhalm@bfhsla.org

Primary contact: David Ferris dferris@bfhsla.org

Website address: www.bfhsla.org

Total students enrolled: 970 Grades 9-12



PROGRAMS OFFERED

Unique Offerings: All students complete an Individual Research Project. Students may intern with faculty at the University of New Orleans, Tulane University, and the Louisiana State University Medical Center. Additionally, Franklin is proud to partner with the New Orleans Center for Creative Arts (NOCCA), giving qualified students the opportunity for off-campus preprofessional arts training with intensive instruction in dance, media arts, music, theater arts, culinary arts, visual arts and creative writing.

Math Courses/Electives: Algebra I/II, Geometry, Pre-Calculus, Calculus (AP), Statistics

Science Courses/Electives: Physics (I,II, AP), Biology (I, II, AP), Chemistry (I,II,AP), Earth Science, AP Environmental Science

Technology Courses/Electives: Computer Science (I, AP), Media Arts (I, II), Digital Media

Dual Enrollment: Yes, with the University of New Orleans

Scholarship Awards: \$: \$36,000,000 in Merit Based College Scholarships Awarded in 2017

INSTITUTIONAL MEMBERS

Benjamin Franklin High School, New Orleans' most outstanding public charter school, has been preparing students for success through academic achievement since it was founded in 1957. Consistently ranked as a "top public high school in the nation" by U.S. News and World Report, Newsweek and Businessweek, Franklin has received the highest School Performance Score in Louisiana, making it the #1 public school in the state, year after year. Franklin is repeatedly named a National Blue Ribbon School, producing Presidential and National Merit Scholars each year. The exceptional students, faculty and staff of Benjamin Franklin High School are the best and the brightest of New Orleans.

Louisiana School for Math, Science, and the Arts

715 University Parkway
Natchitoches, LA 71457

Head of school: **Steven G. Horton, PhD** Director
shorton@lsmsa.edu 318.357.2500

Website address: **www.lsmsa.edu**

Total students enrolled: **360**

School structure: Residential (students live on campus)
3-year program (grades 10-12)



PROGRAMS OFFERED

Unique Offerings: Special Projects Week, Work Service Program, Future Scientists Program, Classical Scholars Program, Caroline Dorman Environmental Program, Artists-in-Training Program, full Arts and Humanities curriculum integrated alongside Math and Science offerings, various research and internship opportunities across the state, and the opportunity to earn an Associate's Degree alongside the LSMSA high school diploma.

Math Courses/Electives: Probability and Statistics, Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math, Topology, AP BC Calculus, Vector Calculus, Modern Algebra, Chaos Theory

Science Courses/Electives: 3-D Visualization; Accelerated Physics III and lab; Analytical Chemistry and lab; Animal Behavior; Biochemistry I and II; Botany and lab; Ecology and lab; Embryology; Genetics and lab; Microbiology and lab; Organic Chemistry and lab; Quantum Mechanics; Thermodynamics

Technology Courses/Electives: Robotics, Computational Science, 3-D Design

Computer Science Courses/Electives: Java, C++, Python, Data Structures, Game Design, Programming in JAVA, Mobile App Development

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad

Scholarship Awards: \$21.4 M offered to 104 graduates, plus 100% qualifying for state's scholarship program for in-state universities

Patrick Taylor Science and Technology Academy

701 Churchill Parkway
Avondale, LA 70094



Head of school: **Jaime Zapico** Principal jaime.zapico@jppss.k12.la.us

Primary contact: **Jasmine Hernandez** jasmine.hernandez@jppss.k12.la.us 504.838.2249

Website address: **www.pftsta.com**

Total students enrolled: **350**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)

PROGRAMS OFFERED

Unique Offerings: One to one laptops, senior project

Math Courses/Electives: Algebra I, Geometry, Algebra II, Pre-Calculus, Statistics (AP or other)

Science Courses/Electives: Biology, Chemistry, Physics, Earth Science

Dual Enrollment:

Yes – At the college/university, taught by college/university staff

Scholarship Awards: \$2.5 million

MAINE

Maine School of Science and Mathematics

95 High St.

Limestone, ME 04750

mssm@mssm.org 207.325.3303

Head of school: **David Pearson** Executive Director pearsond@mssm.org 207.325.3605

Website address: **www.mssm.org**

Total students enrolled: **140**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)

Residential (students live on campus)

2-year program (grades 11-12), 3-year program (grades 10-12), 4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: January Term (Short two week intensive term), Internships, Student Research, Partnering with Higher Education Institutes for Dual Credit, STEM Talks, etc.

Math Courses/Electives: Accelerated Principles of Geometry with Algebra, Accelerated Advanced Mathematics, Before-Calculus, Statistics, Accelerated Statistics, Calculus, Multivariable Calculus, Linear Algebra, Differential Equations, Complex Analysis, Introduction to Higher Mathematics, Number Theory, Combinatorics

Science Courses/Electives: Physical Science, Biological Processes and Research, Plant Biology, Chemistry, Physics, Applied Genetics & Biotechnology, Astronomy, Anatomy and Physiology, Field and Spacetime, Waves and Oscillations

Technology Courses/Electives: Creative Robotics, 3D Rendering & Animation, Topics in Software Engineering and Robotics, Web Development, App Development, Game Development

Research Courses/Electives: Topics in Software Engineering and Robotics, Creative Robotics, J-Term courses such as Ecological Research or Genetics

Computer Science Courses/Electives: Introduction to Programming and Algorithms, Data Structures and Algorithms

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Mathematical Association of America Competition, American Regions Mathematics League, VEXRobotics, Science Bowl, Sea Perch Challenge, Physics Olympiad, Science Fair

MARYLAND

Anne Arundel County Public Schools - South River High School

201 Central Avenue East

Edgewater, MD 21037

Head of school: **William T. Myers** wtmyers@aacps.org 410.956.5600

Website address: **www.southriverhigh.org**



Baltimore Polytechnic Institute

1400 W. Cold Spring Ln.
Baltimore, MD 21209

Head of school: **Jacqueline Williams** jwilliams03@bcps.k12.md.us
Primary contact: **Willia Holley** wholley@bcps.k12.md.us 410.396.7026
Website address: **www.bpi.edu**
Total students enrolled: **1,587**
School structure: Comprehensive full-day (students take STEM and non-STEM courses)



PROGRAMS OFFERED

Unique Offerings: Johns Hopkins Research Program Northrup Grumann Internships Lockheed Martin Mentorship Program Robotics It's Academic Annual STEM Competition

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Calculus, Advanced Mathematics, Trigonometry, Statistics (AP or other)

Science Courses/Electives: Biology, Chemistry, Physics, Earth Science, Environmental Science, AP Psychology, Forensics

Technology Courses/Electives: Foundations of Technology, Impacts of Technology, Applications of Technology, Engineering Practicum, Matter and Energy, Electricity

Research Courses/Electives: Senior Research Practicum Science Research Practicum Science Research Science Technology and Society Engineering Practicum

Computer Science Courses/Electives: Java, C++

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search American Mathematics Association Competition, First Robotics, or other robotics competitions

Scholarship Awards: \$27 million

Eleanor Roosevelt Science and Technology Center

7601 Hanover Parkway
Greenbelt, MD 20770

Head of school: **Reginald McNeill** Principal mcneill@pgcps.org
Primary contact: **Jane Hemelt** Coordinator jhemelt@pgcps.org 301.513.5400 ext 82394
Website address: **www1.pgcps.org/eleanorroosevelt**
Total students enrolled: **965**



PROGRAMS OFFERED

Unique Offerings: Internship Program

Math Courses/Electives: Advanced Algebra 1, Geometry S/T, Algebra 2 Honors, Algebra 2 Trig, Trig Analysis Honors, Pre-Calculus Honors, AP Calculus AB, AP Calculus BC, AP Statistics, Calculus 3 and Differential Equations. The Calculus 3/Differential Course is offered through The Catholic University of America; students earn 4 college credits for each course.

Science Courses/Electives: Biology S/T, Chemistry S/T, Physics S/T, Genetics, Microbiology, Anatomy/Physiology, Forensics Science 1 and 2, A.P. Environmental Science, AP Chemistry, AP Physics C.

Technology Courses/Electives: Foundations of Technology, Engineering Foundations 2, Productions Systems, Architectural Drafting

Research Courses/Electives: Research Practicum (Grade 12)

Computer Science Courses/Electives: Intro Computer Science, AP Computer Science

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, ISEF International Science Fair, First Robotics

Scholarship Awards: \$24 million (Class of 2016)

The Ingenuity Project

1400 W. Cold Spring Ln.
Baltimore, MD 21209
410.662.8665



Executive Director: **Lisette Morris** Executive Director lmorris@ingenuityproject.org

Primary contact: **Dr. Sergei Zverev** Associate Director szverev@ingenuityproject.org

Website address: **www.ingenuityproject.org**

Total students enrolled: **560**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
School within a school (program open to local school district and/or to a magnet population)
7-year program (grades 9-12)

PROGRAMS OFFERED

Unique Offerings: Intel Science Talent Search, Intel International Science and Engineering Fair, Siemens Competition, Baltimore Science Fair, Maryland Math League, American Mathematics Competition (AMC) and American Invitational Mathematics Exam (AIME), University of Maryland Mathematics Competition, Jr. Sciences and Humanities Symposium. Ingenuity students complete their independent research projects at leading research institution in Maryland such as Johns Hopkins School of Medicine, Space Telescope Science Institute, Johns Hopkins Departments of Molecular Biology and Genetics, Chemical and Biomolecular Engineering, , Neurology, Physics and Astronomy, Mathematics, Mechanical Engineering; The Carnegie Institution, Kennedy Krieger Institute, etc.

Math Courses/Electives: Geometry, Algebra II, Trigonometry, AP Calculus AB, AP Calculus BC, Probability and Statistics, Statistics (AP or other)

Science Courses/Electives: Biology, Chemistry, Physics, AP Chemistry and AP Physics B

Technology Courses/Electives: Fundamentals of Technology

Research Courses/Electives: Science, Technology and Society, Ingenuity 3-credit Research Practicum

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, Biology Olympiad

Scholarship Awards: \$3,000,000

Montgomery Blair High School Science, Mathematics & Computer Science Magnet Program

51 University Blvd, East
Silver Spring, MD 20901

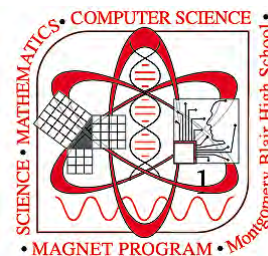
Head of school: **Renay Johnson** Principal renay_c_johnson@mcpsmd.org

Primary contact: **Peter Ostrander** peter_m_ostrander@mcpsmd.org 301.649.8240

Website address: **www.mbhs.edu**

Total students enrolled: **410**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
School within a school (program open to local school district and/or to a magnet population)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: 10th grade environmental science trip to Wallops Island, VA, Senior Research Project Program with outside mentor, 50 Intel Science Talent Search semifinalists or finalists from 2008-2013, 49 Siemens Competition regional semifinalists or finalists from 2007-2012, Compete in American Mathematics Competition, American Regions Mathematics League, American Computer Science League, USA Computing Olympiad, Science Olympiads (Physics, Biology, Chemistry), Envirothon, Science Bowl, Ocean Science Bowl, FIRST Robotics League, Moody's Mega Math Challenge, and other assorted academic competitions Host annual PuzzlePalooza - Week-long student puzzling competition

INSTITUTIONAL MEMBERS

Math Courses/Electives: Geometry, Algebra II, Pre-Calculus Calculus, AP Calculus BC, Statistics (AP or other), Multivariable Calculus, Linear Algebra, Discrete Math, Logic, Advanced Geometry, Complex Analysis, Sports Statistics

Science Courses/Electives: Biology, Chemistry, Physics, Earth Science, Analytical Chemistry, Astronomy, Biological Chemistry, Cellular Physiology, Entomology, Genetics, Marine Biology, Mathematical Physics, Optics, Organic Chemistry, Origins of Science, Physical Chemistry, Quantum Physics, Thermodynamics

Technology Courses/Electives: Research & Experimentation, Principles of Engineering, Robotics, Material Science

Research Courses/Electives: Research & Experimentation, Senior Research Project

Computer Science Courses/Electives: Fundamentals of Computer Science, Algorithms and Data Structures, Java, Open Source/Linux, LISP

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, First Robotics, or other robotics competitions

Scholarship Awards: \$7.5 million (merit based for class of 2013)

Oxon Hill High School, Science and Technology Center

6701 Leyte Drive
Oxon Hill, MD 20745

Head of school: **Dr. Jean Paul Cadet** Principal JeanPaul.Cadet@pgcps.org

Primary contact: **Dr. Tameka Woodruff** Science and Technology Program Coordinator
Tameka.Woodruff@pgcps.org 301.749.4300 ext. 84883

Website address: www.pgcps.org/oxonhillhs

Total students enrolled: 578

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: NAVSEA partnership, Robotics, Internship programs and partnerships at NASA, USDA, NIH, and area University/Hospital Labs

Math Courses/Electives: AP Statistics and AP Calculus C

Science Courses/Electives: AP Biology, AP Chemistry, AP Physics C, Bio-Organic

Technology Courses/Electives: Foundations of Technology ST/Engineering Foundations 1, Engineering Foundations 2, Production Systems, Structural Systems, Architectural Graphics, Engineering Graphics, Electrical Systems, Energy Systems

Research Courses/Electives: Research Practicum

Computer Science Courses/Electives: AP Computer Science Principles, Intro to Computer Science, & AP Computer Science A

Dual Enrollment: Yes (at school and on college campuses)

Online Courses: Yes

Participation in National Academic Competitions: FIRST Robotics, Maryland Mathematics, Engineering, and Science Achievement (MESA), World Smart STEM Challenge, National SeaPerch Challenge

Scholarship Awards: \$11 million

Poolesville High School – A Whole School Magnet

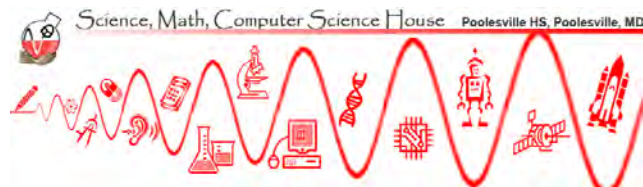
17501 West Willard Rd.
Poolesville, MD 20837

Head of school: **Ms. Deena Levine** Principal Deena_Levine@mcpsmd.org

Primary contact: **Ms. Allison Wilder** Magnet Coordinator Allison_C_Wilder@mcpsmd.org

Total students enrolled: 240

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Whole-School Magnet (program open to local school district and/or to a magnet population)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Poolesville High School has been ranked by Newsweek Magazine as the #1 School in the State of Maryland for the last three years. The whole school magnet opens to all the promise of rigorous, engaging courses taught by inspired teachers. A whole school magnet is organized around instructional “houses”. The two “tested-in” programs that highlight STEM education are the Science, Math, Computer Science House and the Global Ecology House. Over 50 students enter into original research conducted at a private or public research facility between their junior and senior year.

Math Courses/Electives: Algebra I, Honors Geometry, Honors Algebra II, Honors Pre-Calculus, Magnet Precalculus, AP Calculus AB, AP Calculus BC, Statistics (AP or other), Multivariable Calculus and Differential Equations, Analysis 1, Linear Algebra,, Vector Calculus are offered

Science Courses/Electives: AP Biology, AP Chemistry, AP Environmental Science, AP Physics B & C, Analytical Chemistry, Biochemistry, Cellular Physiology, Introduction to Genetics, Optics, Quantum Physics and Thermodynamics

Technology Courses/Electives: Principles of Engineering, Robotics, Materials Science

Research Courses/Electives: Research and Experimentation , Principles of Engineering , Research Design , Research Project A, Research Project B, Guided Research

Computer Science Courses/Electives: Analysis of Algorithms, Fundamentals of Computer Science, Networking, Software Design, Introduction to Artificial Intelligence with LISP, Cyberforensics, Algorithms and Data Structures, Programming Languages, Elements of Computer Systems

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Regeneron Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, First Robotics, or other robotics competitions, Cyberforensics Challenge and Ability One Design Challenge, Davidson Competition, Junior Science and Humanities Symposium

Scholarship Awards: \$18 million for the entire senior class

Science and Mathematics Academy at Aberdeen High School

251 Paradise Road
Aberdeen, MD 21001
443.299.9130

Head of school: Sarah Ashley Program Director sarah.ashley@hcps.org

Website address: www.scienceandmathacademy.com

Total students enrolled: 205

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
School within a school (program open to local school district
and/or to a magnet population)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: The SMA offers a college preparatory program which provides students the opportunity to engage in challenging coursework that will prepare them for Science, Technology, Engineering and Mathematics (STEM) opportunities in higher education. All courses emphasize problem solving and creative thinking by using multiple resources and inquiry-based learning. Advanced placement courses in science and mathematics are offered to students, as well as a large selection of semester electives based on students’ interest and faculty experience: Exclusive to the SMA is a four-year sequenced series of courses called Science, Research, and Technology (SRT I-IV) which provides all students with an opportunity to integrate STEM curriculum in relevant and authentic research. Regular contact with practicing scientists, engineers, and mathematicians is provided throughout the program. Beginning in the junior year of the SRT course sequence, each student is introduced to a breadth of research and career options in: Biotechnology & medical sciences Pre-engineering & physical sciences Computational sciences & mathematics Geosciences & environmental sciences. In the senior year, each student conducts a capstone research project under the mentorship of a professional scientist, mathematician, or engineer. The year-long capstone project concludes with a detailed, scientific poster and a presentation to peers, faculty, parents, and mentors.

Math Courses/Electives: Algebra II, Trigonometry, AP Calculus AB/BC, AP Statistics,, Linear Algebra, Introduction to Mathematical Logic

Science Courses/Electives: AP Biology, AP Chemistry, AP Physics C: Mechanics and Electricity & Magnetism, AP Environmental Science, Kinesiology, Sports Physiology, Materials Science, Organic Chemistry, Biochemistry, Ecology, Bacteriology, Biotechnology, Genetics, Plant Physiology, Astrophysics

INSTITUTIONAL MEMBERS

Technology Courses/Electives: A four-year sequenced series of courses called Science, Research, and Technology (SRT I-IV), Principles of Engineering, Microcontrollers, Robotics, Computer Aided Drafting and Design, Cryptology, Design Engineering, Technical Writing

Research Courses/Electives: Science, Research, and Technology (SRT) culminates in a year-long capstone project under the mentorship of a professional scientist, mathematician, or engineer. The capstone project concludes with a detailed, scientific poster and a presentation to peers, faculty, parents, and mentors. SRT IV is a two-credit course (about 300 hours of class time).

Computer Science Courses/Electives: Java, C++, VBA

Participation in National Academic Competitions: MAA's American Mathematics Competition, University of Maryland Math Competition, Maryland Math League, Moody's Mega Math (M3) Challenge, Purple Comet Math Meet

Scholarship Awards: Over \$8 million per year for our graduating class

MASSACHUSETTS

King Philip Regional High School

201 Franklin St.
Wrentham, MA 02093
508.384.1000 ext. 3443

Head of school: **Lisa Mobley** Principal mobleyl@kingphilip.org 508.384.1000

Primary contact: **Ann Lambert** Science Department Head lamberta@kingphilip.org 508.384.1000

Website address: **www.kingphilip.org**

Total students enrolled: **1,290**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)

PROGRAMS OFFERED

Students take physical science in 9th grade and biology in 10th grade. All students take the Biology MCAS. Starting in 10th grade, students may double up on science electives if they so choose. Our science department members are committed to the belief that all students can and should graduate with the foundation knowledge to be well-informed citizen scientists. That being said, because of the number of electives we offer and the interest many of our students take in the sciences, many students enroll in two or three science courses per year so that our enrollment is often 115 - 120% of the student population.

Upper electives include: chemistry and AP Chemistry, physics and AP Physics, marine science, anatomy and physiology, AP Environmental Science, weather and natural disasters, biotechnology, STEM research, and AP Computer Science. Our school is also an AP Capstone school, providing students who have opted for this program to engage in full-year research through the AP Research course.

Unique Offerings: King Philip students have an opportunity to graduate with Distinction in STEM. Candidates propose a project idea, engage in literature review, develop a product that is shared with the greater community in some capacity, write a process paper, then present their project to a faculty panel.

We have a chapter of the Science National Honor Society, and in fact, ours was the first in the Commonwealth of Massachusetts. Each year we have roughly 70 or more students (juniors and seniors) in the society. The SNHS is not an honor society in name only. Our chapter regularly holds STEM events that are open to the entire school, including but not limited to: lectures by officers, King Philip graduates, and professionals working in the STEM field; school-wide engineering challenges; Chem Club activities; and our annual STEM Career Night.

Massachusetts Academy of Math and Science at WPI

85 Prescott St.
Worcester, MA 01605

Head of school: **Michael G. Barney** Director mbarney@wpi.edu 508.831.5859

Website address: **www.massacademy.org**

Total students enrolled: **100**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Located on a University campus
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: The Massachusetts Academy of Math and Science was founded by the Massachusetts state legislature in 1992, as a public school of excellence for 100 academically accelerated 11th and 12th graders. The Academy is a tuition-free, collaborative effort among the Commonwealth of Massachusetts, WPI, and state school districts. While we emphasize math and science, our balanced curriculum offers equally rigorous preparation in the Humanities and World Languages. Juniors take a special program of challenging, interactive courses, starting with a three-day off-campus retreat at the beginning of the academic year. Seniors attend classes at WPI, a nationally ranked engineering school - making the Academy the only public school in the state at which students attend a private university full-time as high school seniors. We have a FIRST robotics team (in partnership with WPI), and our students do original science research in conjunction with their participation in the Massachusetts State Science and Engineering Fair. Many students work in local labs with mentors from the university.

Math Courses/Electives: Math modeling in Grade 11; four Math courses (which typically are a sequence of Calculus 1 – 4, but may include Linear Algebra, Differential Equations, Discrete Math or Real Analysis) at WPI in Grade 12.

Science Courses/Electives: Physics in Grade 11; selected Science or Engineering courses at WPI in Grade 12.

Technology Courses/Electives: Computer Science and Scientific and Technical Writing in Grade 11; Extracurricular course in CAD 3-D printing available in grade 11. Selected Technology courses at WPI in Grade 12.

Research Courses/Electives: STEM I individual research projects and STEM II team research or engineering projects focused on assistive technology in Grade 11.

Computer Science Courses/Electives: Computer Science in Grade 11; selected Computer Science courses at WPI in Grade 12.

Dual Enrollment: Yes – Full time senior year at WPI taught by University staff.

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology; Regeneron Science

Scholarship Awards: \$500,000

Nipmuc Regional High School

90 Pleasant St.
Upton, MA 01568
508.529.2130

Head of school: John Clements jclements@mursd.org
Website address: www.mursd.org



PROGRAMS OFFERED

Unique Offerings: Nipmuc Regional High School serves approximately 650 students in the communities of Mendon and Upton, Massachusetts. Driven by the core values of high expectations, respect, accountability, and academics, Nipmuc's students participate in a rigorous academic program. Focused on developing 21st century skills through the application of learning, the school supports students' personal and academic growth to prepare them for success in students' personal and academic growth to prepare them for success in college, careers, and the community. Nipmuc is a 1:1 learning school in which all learners use iPads to amplify and accelerate learning. Nipmuc provides students with meaningful ways to connect the classroom to careers and the community through the STEM Scholars Program. It has also established a model for student agency and authentic learning through 21st Century Learning Conferences, full-day learning events offered to students through partnerships with professionals and community leaders.

Uxbridge High School

300 Quaker Highway
Uxbridge, MA 01569
508.278.8633

Head of school: Michael D. Rubin Principal mrubin@uxbridge.k12.ma.us 508.278.8633
Website address: <https://sites.google.com/a/uxbridge.k12.ma.us/the-uxbridge-high-sch>
Total students enrolled: 583
School structure: '8-12

INSTITUTIONAL MEMBERS

PROGRAMS OFFERED

Engineering, Advanced Manufacturing, Biomedical Science, Advanced Digital Media studies.

Unique Offerings: Massachusetts Department of Elementary and Secondary Schools Innovation Pathway school. Primary goal of our school is to facilitate authentic learning in consultation with industry partners and to drive student achievement through rigorous, hands-on projects. Students at UHS complete capstone projects and internships that connect scientific study with industry-driven outcomes.

MICHIGAN

Battle Creek Area Mathematics and Science Center

171 W. Michigan Ave.
Battle Creek MI 49017
269.965.9440

Head of school: **Luke Perry** Stem Director lperry@bcamsc.org 269.965.9440

Website address: **www.bcamsc.org**

Total students enrolled: **406**

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Partnerships with business and industry - on-site scientists who assist with instruction and laboratory work

Math Courses/Electives: Geometry, Algebra II, Trigonometry, Pre-Calculus, Calculus, Statistics, Trigonometry, Statistics (AP or other), Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, 3 advanced courses in each area as well

Technology Courses/Electives: Advanced Technology, Unix, AP Computer Science, Robotics 1 & 2, Engineering, Information Engineering, Engineering Analysis

Research Courses/Electives: One of the following: Independent Research, Research Methods, Research through elective courses: analytical chemistry, environmental biology, statistics, Independent Research, Research Methods, Research through elective courses: analytical chemistry, environmental biology, statistics

Computer Science Courses/Electives: Advanced Technology, Java, C++, Python, Unix

Participation in National Academic Competitions: Intel Science Search, First Robotics, or other robotics competitions

Scholarship Awards: \$2 million

Berrien County Math & Science Center

711 St. Joseph Ave.
Berrien Springs, MI 49103

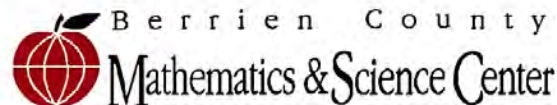
Head of school: **Mike Marinello**

Primary contact: **Tonya Snyder** Coordinator tonya.snyder@berrienresa.org 269.471.7725

Website address: **www.berrienresa.org/bcmssc**

Total students enrolled: **106**

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
Located on a University campus
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Smoky Mountain weekend, physics Day @ Great America, Sam Rhine conference, fab lab access, Chem research opportunities

Math Courses/Electives: Geometry, Algebra II, Pre-Calculus , AP Calculus AB, Statistics (AP or other), Calculus BC

Science Courses/Electives: Biology, Chemistry, Physics

Technology Courses/Electives: Computer Tools Computer Programming

Research Courses/Electives: Research Biology Chem II

Computer Science Courses/Electives: Computer Tools Computer Programming, C++

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Online Courses: Yes

Distance Learning: Yes

Participation in National Academic Competitions: Intel Science Search, Physics Olympiad, First Robotics, or other robotics competitions

Scholarship Awards: \$2 million

Kalamazoo Area Mathematics and Science Center

600 Vine Street Suite 400
Kalamazoo, MI 49008

Primary contact: Dr. Michael Tanoff Director mtanoff@kamsc.k12.mi.us 269.337.0004

Website address: kamsconline.com

Total students enrolled: 300

School structure: Half-day program. Students take STEM courses, then return to another school for balance of courses.



PROGRAMS OFFERED

Unique Offerings: 9-11 Research science thread, national and international computer competitions. Research with mentors in the community. Cricket teams.

Math Courses/Electives: Geometry, Algebra II, Pre-Calculus, AP Calculus AB, AP Calculus BC, AP Statistics, Multivariable Calculus, Discrete Math

Science Courses/Electives: Biology, Chemistry, Physics, at least one additional lab science course (2 semesters)*

Technology Courses/Electives: KAMSC Honors Information Technology (9th grade)

Research Courses/Electives: KAMSC Research Science, KAMSC Independent Research Team

Computer Science Courses/Electives: KAMSC Honors Computer Studies (10th grade), Java, C++, AP Computer Science A, KAMSC Advanced Computer Science

Participation in National Academic Competitions: American Mathematics Association Competition, Intel International Science and Engineering Fair; National and international CS competitions; TSA TEAMS Competition

*Including AP Chemistry, AP Biology, AP Physics C (Mechanics and E and M), AP Environmental Science, Biochemistry, Biomedical Science, Materials Science, Organic Chemistry, Geology, Astronomy, Human Genetics, Microbiology, Evolution of Scientific Thought, Current topics in Science, Bioethics.

Lakeshore High School Math/Science Center

5771 Cleveland Ave.
Stevensville, MI 49127

Head of school: Brad Brunner bbrunner@lakeshoreps.org 269.428.1402

Website address: www.lakeshoreschools.k12.mi.us/high



MISSISSIPPI

The Mississippi School for Mathematics and Science

1100 College Street, MUW-1627
Columbus, MS 39701
662.329.7674



Head of school: **Dr. Germain McConnell** Executive Director gmcconnell@themsms.org
Primary contact: **Ms. Amber Lynn Moore** Senior Executive Assistant amoore@themsms.org
662.329.7674

Website address: **www.themsms.org**

Total students enrolled: **235** (Capacity of 300 students when fully funded)

School structure: Comprehensive full-day (students take STEM and non-STEM courses)

PROGRAMS OFFERED

Unique Offerings: MSMS provides innovative STEM education and a well-rounded high school experience for attending students. This is accomplished through strong partnerships with state universities, practitioners, and businesses throughout Mississippi. Most of the dual-credit courses are offered free through the Mississippi University for Women (MUW), which hosts MSMS on its campus. To pursue research interests, all students at MSMS can participate in semester-long research internships at Mississippi State University (MSU), as well as summer research internships at other universities. To explore career interests, students can participate in the Mentorship and Internship programs during the school year and during the summer. Furthermore, students are encouraged to explore ways they can impact the future economy of the state through the MSMS Entrepreneurship program.

Students are engaged in weekly laboratory experiences in their science courses and are required to take a minimum of two classes in each of the three sciences (biology, chemistry, and physics). At least four mathematics courses must be taken, with all students required to take Calculus and Statistics. A variety of computer science and engineering courses are also available, with several of them offered as dualcredit through MSU. Many students participate in the Engineering Club and implement creative project ideas in the newly formed MSMS Engineering Lab. Though STEM subjects are the primary focus, MSMS also offers rich programs in humanities and arts, including instruction in five languages, opportunities for participation in dramatic performances, and visual arts offerings in drawing, sculpture, and painting. The MSMS Tales from the Crypt class is a research-based U.S. History class with strong genealogical and performance components that has been recognized by several entities, including the National Endowment for the Humanities. Additionally, MSMS music students tour through the state each year, performing and exploring the state's rich musical heritage. Finally, MSMS students have opportunities to impact students across Mississippi through participation in various outreach activities that annually reach approximately 6,000 students.

Math Courses/Electives: Accelerated Algebra II, Foundations for Higher Math, Trigonometry, PreCalculus, Math Modeling, University Calculus 1-3 (option of Calculus 4 through MUW), AP Calculus, AP Statistics I and II, Differential Calculus, Integral Calculus, Differential Equations, Discrete Math, History of Mathematics, Logic and Game Theory, Number Sense

Science Courses/Electives: AP Biology, Cell Biology, Genetics, Human Infectious Diseases, Microbiology, Ecology, Biochemistry, Properties of Matter, Chemical Reactions, AP Chemistry, Analytical Chemistry, Physical Chemistry, Organic Chemistry, AP Physics 1, AP Physics 2, Advanced Problems in Physics, Electricity and Magnetism, Mechanics, Modern Physics, Astronomy/Astrophysics

Technology Courses/Electives: Electronics, Robotics, Introduction to Engineering (dualcredit), Introduction to Engineering-Chemical and Petroleum (dual-credit)

Research Courses/Electives: Research Internship, Survey of Scientific Research, Tales from the Crypt (a research-based U.S. History course)

Computer Science Courses/Electives: Introduction to Programming (dual-credit with lab); Intermediate Programming (dual-credit with lab); Game Design, Robotics, Integrated Computer Science

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: International Science and Engineering Fair; Siemens Competition in Math, Science, and Technology; Science Olympiad; Science Bowl; American Association of Physics Teachers (AAPT) Bowl; First Robotics; SeaPerch; American Mathematics Competitions; National Assessment and Testing math contests; Arete Math Madness, CoMAP hiCMC, Mathleague; National Scholastic Art & Writing Awards program

Scholarship Awards: Class of 2018 accepted more than \$9.6 million

MISSOURI

Rockhurst High School

9301 State Line Road
Kansas City, MO 64114

Contact: Greg Owsley STEAM Director gowsley@rockhursths.edu
816.363.2036 ext. 287

Secondary Contact: Paul Winkle pwinkle@rockhursths.edu

www.rockhursths.edu



Rockhurst High School is the only Jesuit Catholic private college preparatory school for boys in grades 9 – 12 in the Kansas City area. Rockhurst draws a student body that is ethnically and socio-economically diverse from 95 different zip codes, 56 in Missouri and 39 in Kansas with 20% of the student body self-identifying as a student of color.

AdvancED STEM Certification

Rockhurst High School is proud to have the distinction of earning AdvancED STEM Certification. This certification recognizes that its STEM educational programs have met the rigor and substance vital to creating and sustaining superior, student-centered STEM teaching and learning programs. Rockhurst is committed to preparing learners for the careers of tomorrow by continuing to foster and perpetuate their enthusiasm for STEM disciplines today. The focus on STEM demonstrates continued commitment to fulfil the school's mission and vision.

Student Life

More than 45 co-curricular activities are offered in addition to 12 varsity athletic teams (in the past 10 years, teams have won 32 Missouri titles and 72 district championships). Students hold positions on key decision-making panels that affect the school climate (i.e. Student Government Association, Student Life Committee). High quality acting, vocal and instrumental programs have enabled students to participate in community events and win awards in state band and orchestra competitions. Students write for the nationally recognized award-winning publications: Prep News, the Quarry Yearbook and the Rock Collection Literary Magazine.

Students participate in the "Total Ignatian Experience," an immersion program, in and out of Kansas City, and internationally, each year. These trips are built on the four pillars of service, community, simplicity, and prayer. All students are required to complete over 150 service hours to graduate. In the 2016 school year, Rockhurst students completed more than 45,000 hours of service. In addition, 31 students received the 2016 Presidential Volunteer Service Award. Each year funding efforts led by student-leaders raise over \$50,000 for local and international aid organizations, emphasizing the school's mission of being compassionate to those in need.

Students are recognized on a yearly basis through the National Merit Foundation Scholarship Program. Class of 2016: 12 Finalists 13 Semifinalists 10 Commended.

Unique Offerings:

Sophomore Conference is a unique experience in which each sophomore works on a monthly project focused on their personal growth and interpersonal skills. Inspired by a project based learning model, students set goals, measure their progress, and pitch their learning experiences to an audience every month. Seniors participate in the Senior Service Project which is a three week Christian service activity in which students are asked to work and learn with persons in the greater community who have special needs. They do this full time, outside the familiar environments of their homes and school.

Unique Spaces: An Academic Learning Commons leverages modern day design to enhance learning. Breakout conference rooms, silent study rooms, a maker counter, and the pitch space with at least weekly guest speakers creates a vibrant learning environment. Traditional classrooms are steadily being converted to Active Learning Classrooms. Approximately one-third of all classrooms are currently active learning classrooms. This rooms promote a student-centered, collaborative, and inquiry-based learning environment.

INSTITUTIONAL MEMBERS

Fundamentals of Scientific Research is a year long course that allows students to pursue authentic science research. These students present their research at the school's annual STEAM Summit as well as compete at local ISEF competitions.

Entrepreneurship for Others is a semester long entrepreneurial mindset course that empowers students to solve a community problem through the creation of a product or service. Students work with mentors and prototype their solution. The class culminates in an end of semester pitch night competition.

Introduction to Computer Science is a semester long project based learning course required of all freshmen before continuing on through a computer science pathway. Every student uses a language called Processing (Extension of Java developed by MIT) to develop their own 'sprite'.

Math Courses/Electives: AP Statistics, AP Calculus I, AP Calculus II, Multi-Variable Calculus (college credit awarded through Creighton University).

Science Courses/Electives: All college-level biology, chemistry, calculus-based physics, astronomy, earth science, human physiology, principles of engineering, introduction to robotics, Robotics and Engineering I & II.

Technology Courses/Electives: Computer Management, Automated Accounting, Intro. to Filmmaking, Advanced Filmmaking, Broadcasting, Graphic Design, Webpage Design, Design for Industry.

Research Courses/Electives: Fundamentals of Scientific Research, Entrepreneurship for Others
Computer Science Courses/Electives: Introduction to Computer Science (a required programming course for all freshmen), Software Applications Development, AP Computer Science Principles, AP Computer Science A

Computer Science Courses/Electives: Introduction to Computer Science (a required programming course for all freshmen), Software Applications Development, AP Computer Science Principles, AP Computer Science A

Dual Enrollment: Yes - advanced Placement French 4, Honors French 3, and 5. Honors Spanish 3, and 4.

Participation in National Academic Competitions: First Robotics (Rookie All-Star Award 2016), American Mathematics Association Competition, Multiple science and computer science Olympiad competitions.

Scholarship Awards: In the 2015-16 school year, 38% of students received \$2.1 million in financial aid enabling student attendance from diverse socio-economic backgrounds.

St. Teresa's Academy

5600 Main St.
Kansas City, MO 64113
816.501.0036

Head of school: **Nan Bone** President nbone@stteresasacademy.org 816.501.0021

Primary contact: **Barbara McCormick** Principal bmccormick@stteresasacademy.org
816-501-0036

Website address: stteresasacademy.org

Total students enrolled: 600

School structure: College Preparatory full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)
Independent Catholic All Girls High School



PROGRAMS OFFERED

St. Teresa's Academy, a Catholic, independent, college preparatory high school, sponsored by the Sisters of St. Joseph of Carondelet, is committed to the education of young women. The Academy, rooted in Christian values and embracing a diverse student body, promotes excellence in education through a challenging curriculum, personal responsibility, and participation in extra-curricular activities.

Unique Offerings: STA is a one-to-one campus where all students have personal Surface Pro 4s. The flexible module schedule allows students to have full enrollment in a variety of course offerings as well as access to additional resources and opportunities similar to a college environment. One resource is the Math Hub where students have full-day open access to math faculty, mentors, and supplemental exploratory activities.

Math Courses/Electives: Advanced Algebra I/II, Honors Algebra II/Geometry, College Pre-Calculus, AP Calculus AB, AP Calculus BC, AP Statistics, Statistics & Probability, and Online Personal Finance.

Science Courses/Electives: Advanced Biology, AP Biology, Honors Chemistry, AP Chemistry, Honors Physics, College Physics, AP Environmental Science, Forensic Science I & II, Anatomy & Physiology I & II, and Astronomy. Additionally, Neuroscience and Marine Science are available online through One Schoolhouse.

Computer Science & Technology Courses/Electives: Robots devices, Motion, Sensing & Control; Computer Programming I; AP Computer Science Principles, AP Computer Science A, 2D/3D Game Development, App Development, and SWAT - Students Working to Advance Technology.

Digital Art Courses/Electives: 2D/3D Spatial & Design; Digital Illustration & Animation; Print Design & Layout; Digital Photography; and Graphic Design.

Dual Enrollment: St. Teresa's Academy instructors teach dual credit courses through Rockhurst University and University of MO - Kansas City at our high school campus including European History I & II; PreCalculus, Calculus I and II; French III & IV, Spanish III & IV, and English Composition I & II. Students may take additional courses on the campus of Rockhurst University.

STEAM Certificate: The STEAM Certificate acknowledges students for their achievements and involvement in STEAM related activities. This is a multi-year effort that focuses on several academic subject areas and community learning. The program is designed to provide preparation and opportunities related to STEAM fields in and beyond the typical classroom day. Students completing the STEAM certificate will receive special recognition in the commencement program as well as documentation on their transcript. An online application is available for sophomores and juniors.

eMentoring: A junior looking into possible careers can make an online connection between herself and a professional who is working in a career of interest to the student through the eMentoring program. With the guidance of a mentor, the student becomes aware of the knowledge and skills needed to take a realistic look at her future, to gain awareness about the demands and opportunities within the job market and to begin to develop a plan that puts her on the path towards success.

STEM Extracurricular: Math Mentors, STEM Club, Girls Who Code

Participation in National Academic Competitions: Math Team; First Tech Challenge Robotics; Science Quiz Bowl; Future Business Leaders of America; Scholastic Writing; Scholastic Art; National Scholastic Publications Association; and Debate.

NEW HAMPSHIRE

The Academy for Science and Design

486 Amherst St. Unit 1
Nashua, NH 03054
603.595.4705

Head of school: Jennifer Cava jennifer.cava@asdnh.org

Primary contact: Stephanie Dumoski stephanie.dumoski@asdnh.org
Coordinator of Curriculum & Scheduling

Website address: www.asdnh.org

Total students enrolled: 525

School structure: Comprehensive full-day Public Charter School (students take STEM and non-STEM courses)



PROGRAMS OFFERED

Unique Offerings: The Academy for Science & Design's STEM-focused program is advancing global citizenship by fostering curiosity, innovation, and leadership for all learners. ASD subscribes to the core beliefs that curiosity is a catalyst for learning, students deserve to be challenged, we are all global citizens, teachers are also learners, and industry partners are essential. These beliefs form the foundation of our mission to foster an environment that inspires, nurtures, and challenges every student; cultivating their individual abilities to lead advancements in science and technology, as well as to become thoughtful, compassionate, and engaged citizens.

Math Courses/Electives: Algebra 1; Accelerated Math 1, 2, and 3; Advanced Calculus, Advanced Statistics, Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math

Science Courses/Electives: Biology Honors, Chemistry Honors, Physics Honors, Advanced Biology, Advanced Chemistry, Advanced Physics, Anatomy and Physiology, Botany, Estuaries, Forensic Science, Marine Biology, Zoology, Organic Chemistry, Advanced Environmental Science, Sustainability, Advanced Psychology

INSTITUTIONAL MEMBERS

Engineering Courses/Electives: Foundations of Engineering, Civil Engineering, Mechanical Engineering, Electrical Engineering, Architecture, Environmental Engineering

Computer Science Courses/Electives: Foundations of Computer Science, Java, Python, Introduction to C++, CAD

Aero/Astrospace Courses/Electives: Astronomy, Concepts in Atmospheric Flight, Concepts in Space Operations

Research Opportunities: Learning Studios, Senior Research Project, Internship

Dual Enrollment: ASD's instructors teach dual credit courses through Nashua Community College and Southern New Hampshire University, including Calculus I, II, and III, Multivariable Calculus, General Chemistry I, Introduction to Programming, and others.

New Hampshire Scholars: ASD graduation requirements qualify all graduating students to be a New Hampshire scholar. Many students go beyond those basic requirements, both in coursework and GPA, to qualify for either or both the STEM or ART pathways.

Participation in Academic Competitions: Science Quiz Bowl, Granite State Quiz Bowl, Poetry OutLoud, First Robotics, MathWorks Modeling Challenge

NEW JERSEY

Academy of Allied Health & Science

2325 Heck Ave.
Neptune, NJ 07753

Head of school: Paul Mucciarone pmucciarone@ctemc.org 732.775.0058

Website address: aahs.ctemc.org



PROGRAMS OFFERED

Unique Offerings: The Academy of Allied Health and Science prepares and motivates students to pursue further education towards a career in the medical sciences through a rigorous specialized curriculum and community-based partnerships, inspiring students to serve society with compassion, skill, and vision.

Unique Offerings: Dual Enrollment in Dynamics of Health Care in Society, Anatomy and Physiology 1, Anatomy and Physiology 2, Nutrition, Emergency and Clinical Care, and Medical Terminology with Rutgers University, School of Health Related Professions, and Introduction to Cellular and Molecular Biology with Georgian Court University.

Clinical Experience through freshman year field trips to a variety of Health Care delivery providers, job shadowing rotations at Jersey Shore University Medical Center during sophomore year, service learning in public health during junior year, and an eight-week mentorship with a health care professional during senior year.

Bergen County Academies

200 Hackensack Avenue
Hackensack, NJ 07601

Head of school: Russell Davis Principal rusdav@bergen.org 201.343.6000

Website address: bcts.bergen.org

Total students enrolled: 1,057

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Seven unique Academies comprise the Bergen County Academies - Science, Business, Computer Science, Culinary Arts, Engineering, Medical, and Visual and Performing Arts. We offer a variety of in house research programs including Stem Cell Research, Biotechnology, Nanotechnology as well as a Microscopy lab featuring two state of the art electron microscopes. Our students have access to an in house Bloomberg terminal. Students can take part in Global Exchange Programs with a growing list of countries including China, Japan, Singapore, South Korea and Greece. Students can participate in electives across all Academies, as

well as competitive and social Projects and Clubs from a variety of disciplines. In addition to the National Academic Competitions, we participate in Model UN, DECA, SkillsUSA, Debate Team and Quiz Bowl. We offer many AP and IB courses. All seniors participate in workplace internships one full day a week. We are planning build a new Energy & Sustainability Center.

Math Courses/Electives: Algebra II, Calculus, AP Calculus AB, AP Calculus, BC Multivariable Calculus, AP Statistics, Discrete Math, Data Structures, Linear Algebra/Differential Equations, Statistics (AP or other), Multivariable Calculus, Linear Algebra Differential Equations, Discrete Math, Math Research

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science

Technology Courses/Electives: Intro Engineering & Design Principles of Engineering Electrical Engineering, Computer Integrated Manufacturing, Video Production, Animation

Research Courses/Electives: Chem/Nano Research, Electron Microscopy, Bio Research

Computer Science Courses/Electives: Java, Open Source/Linux, C++, Python, Oracle

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Talent Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computational Linguistics Olympiad, First Robotics, or other robotics competitions

Scholarship Awards: \$15 million +

Biotechnology High School

5000 Kozloski Rd
Freehold, NJ 07728

Head of school: Sean Meehan Principal smeehan@ctemc.org 732.431.7208

Website address: www.bths.mcvsd.org

Total students enrolled: 321

School structure: Comprehensive full-day (students take STEM and non-STEM courses)



Biotechnology High School, an International Baccalaureate World School, integrates life science, technology, and engineering into a rigorous curriculum that inspires students toward open-minded participation in the global community and prepares them for higher education and leadership in an increasingly demanding workplace through scholarly research, original investigations, and interactive partnerships.

Excellence is in our DNA

PROGRAMS OFFERED

Unique Offerings: All students become IB Diploma candidates in their Junior & Senior year. Seniors complete a 5-week, full-time mentorship experience.

Math Courses/Electives: Geometry, Algebra II/Trigonometry, IB Math 1 SL, IB Math 2 SL, AP Calculus AB, AP Calculus BC

Science Courses/Electives: Biology/Genetics, Chemistry, Molecular/Agricultural Biotechnology, IB Biology HL 1, IB Physics HL 1, IB Chemistry HL 1, IB Biology HL 2, IB Physics HL 2, IB Chemistry HL 2, Anatomy and Physiology, BioEngineering, BioMedical Engineering, Developmental Biology, Environmental Biotechnology, Forensic Analysis, Genomics, Proteomics and Bioinformatics, Neuroscience and Biopsychology

Research Courses/Electives: Intro to Experimental Design, Biotech Lab Skills, Advanced Experimental Design, Cell Culture and Molecular Biology Techniques

Computer Science Courses/Electives: Digital Literacy, AP Computer Science A

Dual Enrollment: No

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel International Science and Engineering Fair

High Technology High School

765 Newman Springs Road
Lincroft, NJ 07738

Head of school: **Kevin Bals** Principal kbals@ctemc.org 732.842.8444

Primary contact: **Mike Roche** Science Teacher roche@ctemc.org 732.842.8444

Website address: **www.hths.mcvsd.org**

Total students enrolled: **285**

School structure: Comprehensive full-day Comprehensive full-day (students take STEM and non-STEM courses)

PROGRAMS OFFERED

Unique Offerings: All freshman students take Intro to Research and Data Analysis to prepare them for their sophomore year Research Project. All seniors complete a one-semester mentorship in a professional work or university setting one full day a week. All students are required to take AP Computer Science A and an AP Calculus and AP Science class.

Math Courses/Electives: Geometry, Algebra II, Trigonometry, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC Multi-variable Calculus, Statistics (AP or other), Linear Algebra, Differential Equations Science Courses/Electives: Biology, Chemistry, Physics, AP Biology, AP Chemistry, AP Physics

Technology Courses/Electives: Introduction to Engineering Design, Principles of Engineering, Computer Integrated Manufacturing, Digital Electronics, Civil Engineering & Architecture, Computer Science and Software Engineering, Biological Engineering and Environmental Sustainability, Engineering Design and Development

Research Courses/Electives: Data Analysis, Intro to Research, Research Practicum

Computer Science Courses/Electives: AP Computer Science A, Computer Science and Software Engineering

Dual Enrollment: Yes – At school, taught by school staff. At the college/university, taught by college/university staff

Participation in National Academic Competitions: Regeneron Science Talent Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computational Linguistics Olympiad, Vex Robotics, MathWorks Math Modeling (M3) Challenge, TSA TEAMS

Marine Academy of Science & Technology

305 Mast Way
Highlands, NJ 07732

Primary Contact: **Earl Moore** Principal emoore@ctemc.org 732.291.0995

Secondary Contact: **Lisa Haas** lihaas@ctemc.org

Website address: **mast.ctemc.org**



PROGRAMS OFFERED

The Marine Academy of Science and Technology is a four-year college preparatory program with a thematic, research-based focus on technology and the marine sciences. Located within Gateway National Park, Sandy Hook, New Jersey, MAST is administered by the Monmouth County Vocational School District. MAST offers students the opportunity to pursue study in the fields of oceanography, and technology and engineering with a marine sciences theme, and has a military component requiring each student to participate in the Naval Junior Reserve Officer Training Corps (NJROTC). To facilitate its mission, MAST utilizes a number of technology labs, including a state-of-the-art Computer Aided Design (CAD) lab, a 3700 sq. ft. materials testing and fabrication lab, and a 65-foot research vessel, Blue Sea, which is utilized by all grade levels and sails several times each week throughout the Spring and Fall seasons. MAST also operates and conducts its own research programs out of the James J. Howard Marine Sciences Laboratory, a marine research facility shared by the National Oceanic and Atmospheric Administration (NOAA) and the State of New Jersey, which sits directly adjacent to the MAST's 3½-acre campus. Collectively, these resources provide a learning environment that allows for valid, meaningful scientific research using a wide variety of technologies, helping students become continuous learners with science, math, and technology skills equipped for the 21st Century.

Marine Academy of Technology and Environmental Science

195 Cedar Bridge Road
Manahawkin, NJ 08050
609.978.2077



Head of school: **John Biscardi** Principal jbiscardi@mail.ocvts.org
609.978.8439

Total students enrolled: 300

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)

Website address: www.ocvts.org

PROGRAMS OFFERED

MATES is a specialized high school developed around the marine and environmental science theme. MATES is geared toward students who wish to concentrate their studies in the areas of math and science.

The Mission of the Marine Academy of Technology and Environmental Science (MATES) is to provide an opportunity to students in Ocean County to become critical thinkers and problem solvers. Students of this academy will participate in an intimate, integrated, and challenging curriculum with a focus on marine and environmental science. MATES will empower its students with skills important to post-secondary study and employment in a global community.

Math and Science Magnet Program at Morris Hills

520 West Main St.
Rockaway, NJ 07866

Head of school: **Dr. Kevin S Doyle**
Ed.D. Coordinator of the Math & Science Magnet Program
kdoyle@mhrd.org 973.664.2242

Secondary contact: **Nisha Zoeller** nzoeller@mhrd.org 973.664.2293

Website address: <https://www.mhrd.org/domain/103>

Total students enrolled: 157

School structure: The Magnet Program is part of the NJ Interdistrict School Choice Program and is open to qualified students who live in New Jersey



PROGRAMS OFFERED

AP Capstone, Aviation & Aerospace

Unique Offerings: Students will complete an independent research project, write a dissertation on their project, and orally defend it in front of a team of experts. Students work is aimed at addressing issues in the gap of knowledge of their research interests

Math Courses/Electives: Geometry, Algebra II, Pre-Calculus, Calculus, Advanced Statistics, Multivariable Calculus, AP Statistics, AP Calculus AB/BC

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, Forensic Science, Aviation & Aerospace, Introduction to Flight & UAS, Anatomy & Physiology, AP Biology, AP Chemistry, AP Physics 1, AP Physics C, and AP Environmental Science

Research Courses/Electives: AP Seminar, AP Research

Computer Science Courses/Electives: AP Computer Principles, AP Computer Science A

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: American Mathematics Association Competition, First Robotics, or other robotics competitions

Scholarship Awards: \$7,380,000

The Academy for Mathematics, Science and Engineering

520 West Main Street
Rockaway, NJ 07866



Head of school: Cheryl Giordano Director cgiordano@mhrd.org 973.664.2347
Website address: www.mhrd.org/domain/102

PROGRAMS OFFERED

Unique Offerings: The Academy for Mathematics, Science, and Engineering, located at Morris Hills High School, is a rigorous, highly focused four year program for Morris County Students with career interests in mathematics, science, or engineering. Students complete a challenging curriculum and participate in technical internships with partners from business and industry. Admission to the Academy is competitive, with students selected from throughout Morris County. The Academy is a collaborative effort between the Morris County Board of Chosen Freeholders, the Morris County Vocational School District, and the Morris Hills Regional District. Academy students are enrolled in the Morris County Vocational School District, which is accredited by the Middle States Association of Colleges and Schools and the Council on Occupational Education.

The Academy for Mathematics, Science, and Engineering was ranked 2nd in the nation in the 2016 Newsweek high school rankings.

NEW YORK

The Bronx High School of Science

75 West 205 Street
Bronx, NY 10468

Head of school: Dr. Jean Donahue Principal
Primary contact: Phoebe Cooper Assistant Principal of Organization cooper@bxscience.edu
Website address: www.bxscience.edu
Total students enrolled: 3,000
School structure: Comprehensive full-day (students take STEM and non-STEM courses)



PROGRAMS OFFERED

Unique Offerings: Research, Intel, Seimans-Westinghouse, Sigma Xi, ISEF, First Robotics, Math Team, Chess Team, Debate

Math Courses/Electives: Algebra I, Geometry, Algebra II & Trigonometry, Pre-Calculus, AP Statistics (and other), Multivariable Calculus Linear Algebra, Differential Equations, AP Computer Science, Mathematics/Computer Science Research, Math Team, Robotics, Game Programming, App Development

Science Courses/Electives: Biology, Chemistry, Physics, Genetics, AP Psychology, AP Biology, AP Environmental Science, Microbiology, Nutritional Science, Forensic Science, Animal Behavior, Sustainable Bronx Science/Horticulture, Epidemiology, Exercise Physiology, Marine Biology, Research Literacy, Intro to Engineering, Digital Engineering, Quantitative Analysis, Intro to Modern Physics, AP Chemistry, AP Physics B, AP Physics C, Astronomy and Astrophysics, Intro to Organic Chemistry, Physics of Technical Theatre

Technology Courses/Electives: Applied Science, Intro to Engineering Digital Engineering, Digital Music, Architectural Drafting, Computer Technology, Computer Graphics

Research Courses/Electives: Research Literacy, Sophomore Research, Junior and Senior Research

Computer Science Courses/Electives: Java, C++, Python, C, Mathematica, MathLab, RobotC

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computational Linguistics Olympiad, First Robotics, or other robotics competitions, Sigma Xi

Scholarship Awards: \$40,000,000

Brooklyn Technical High School

29 Fort Greene Pl.
Brooklyn, NY 11217
718.804.6400

Head of school: David Newman Interim Principal
Website address: bths.entest.org



PROGRAMS OFFERED

Unique Offerings: In 1922, the vision and dreams of founding Principal Dr. Albert Colston became a reality and Brooklyn Technical High School opened to the boys of New York City. Since inception, Brooklyn Tech provided a significant part of the solution to the national shortage of trained problem solvers, aspiring engineers, and applied scientists. Now 95 years later, we continue to fulfill our mission and sustain the legacy of excellence created by Tech students through the decades.

The transformational learning experiences provided at Tech are well documented by the remarkable achievements of our esteemed alumni. Technites are in the vanguard of every industry. Among our graduates are Nobel Prize laureates, inventors and innovators, astronauts, medical professionals, distinguished scientists, renowned engineers and architects, as well as noted leaders in business, finance, industry, publishing, and the arts.

High School for Math, Science and Engineering at City College

240 Convent Avenue
NY, NY 10031

Head of school: Crystal Bonds Principal
Primary contact: Wylie Burgan, AP wburgan@hsmse.org 212.281.6490
Website address: www.hsmse.org
Total students enrolled: 470
School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Located on a University campus
4-year program (grades 9-12)



PROGRAMS OFFERED

What Makes Us Unique: HSMSE is one of NYC's elite specialized high schools that champions a rigorous curriculum in both STEM and the humanities. Our collaborative approach to education fosters a supportive community that raises the performance level of our students. At 99% graduation rate and 99% college readiness, we continue to thrive for excellence. We proudly ranked #4 among NYC HSs. Our student body, a close knit community, is ranked the most diverse in the city. **Unique Offerings:** Goethe Institute Partnership, Trips to Germany, Partnership with Mt. Sinai Hospital Medical Center, Computer Networking, Research Alliance with City College Grove School of Engineering, Dual Enrollment in HSMSE and CCNY, taught by school and college faculty, Four year sequence of research.

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, AP Statistics, AP Computer Science

Science Courses/Electives: Biology, Chemistry, Physics, Advanced Biology, Advance Physics, AP Chemistry

Technology Courses/Electives: AP Computer Science, Civil Engineering and Architecture, Drafting for Design and Production, Principals of Engineering, Digital Electronics

Research Courses/Electives: Introduction to Research, Academic Writing and Research

Computer Science Courses/Electives: AP Comp Sci - JAVA, Java

Dual Enrollment: Yes – At the college/university, taught by school staff. At school, taught by college/university staff.

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Biology Olympiad, American Association of Teachers of German Exam, American Mathematics Competition, NYC Interscholastic Math League, NY Math League, NYC Math Fair, NY Science and Engineering Fair

Scholarship Awards: approximately \$7 million

Hunter College High School

71 E 94th Street
New York, NY 10128

Head of school: Dr. Tony Fisher Principal tfisher@hccs.hunter.cuny.edu 212.860.1406

Website address: www.hunterschools.org/hs

Total students enrolled: 1,225 for grades 7-12

School structure: Comprehensive full-day (students take STEM and non-STEM courses)



PROGRAMS OFFERED

Unique Offerings: Access to lab database through Science Research Program

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Statistics (AP or other), Calculus, Calculus AB and Calculus BC are offered, along with others at Columbia and Hunter College

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science

Technology Courses/Electives: AP Computer Science

Research Courses/Electives: Research Program (not a course)

Computer Science Courses/Electives: Java, Open Source/Linux, C++

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computational Linguistics Olympiad

Millennium Brooklyn High School

237 7th Ave
Brooklyn, NY 11215

Head of school: Kevin Conway

Primary contact: Lindsey Baumgarten Assistant Principal lbaumgarten@millenniumbrooklynhs.org 718.832.4333

Website address: www.millenniumbrooklynhs.org

Total students enrolled: 400

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)

PROGRAMS OFFERED

Unique Offerings: Creating a mentorship/internship program. Will be available for students at the end of grade 11. We offer a mandatory research track: 9th grade Quantitative Research; 10th grade; Qualitative Research; 11th & 12th grade will have electives such as anthropology; statistics; architectural design, etc.

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, Statistics (AP or other), Business Math

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science AP

Technology Courses/Electives: Architectural Design offered as a choice for research elective

Research Courses/Electives: Quantitative, Qualitative, Research Internship, plus choice of: Social Justice; Anthropology; Architectural Design; Statistics; AP Statistics. Still planning as our school grows.

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Stuyvesant High School

345 Chambers Street Room 207
New York, NY 10282
212.312.4800 x2070

Head of school: Eric Contreras econtr@schools.nyc.gov
Primary contact: Dr. Gary L. Haber ghaber2@schools.nyc.gov

Website address: www.stuy.edu

Total students enrolled: 3,300

School structure: Comprehensive Full-Day (Students take STEM and non-STEM courses)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Robotics, Intel Research Class, Modern Physics & Nanotechnology, Topics in Neurobiology, Urban Ecology, Medical Ethics

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Statistics (AP or other), Business Math, Multivariable Calculus, Differential Equations

Science Courses/Electives: Biology, Chemistry, Physics, Many Science electives

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Talent Search, International Science & Engineering Fair, Toshiba Exploravision Science Competition, Search, American Mathematics Association Competition, Chemistry Olympiad, Physics Olympiad, FIRST Robotics

NORTH CAROLINA

North Carolina School of Science and Math (NCSSM)

PO Box 2418
1219 Broad Streetemail
Durham, NC 27715

Head of school: Dr. Todd Roberts Chancellor roberts@ncssm.edu

Primary contact: Letita Mason Director of Admissions
masonl@ncssm.edu 919.416.2849

Website address: www.ncssm.edu

Total students enrolled: 680 residential; 240 through Online program

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Residential (students live on campus)



NORTH CAROLINA SCHOOL
OF SCIENCE AND MATHEMATICS

PROGRAMS OFFERED

Unique Offerings: NCSSM offers a mentorship program, where students spend two afternoons a week during their senior year doing research under the guidance of a mentor at one of the local universities or Research Triangle companies. Students conduct a literature review of their research topic, write a scientific paper, and present their findings at one or more research symposia in the spring. Mini-Term is another means by which NCSSM provides significant opportunities for students to engage in unique educational experiences outside of the regular school curriculum and beyond the traditional classroom context. During Mini-Term, in the place of regular classes, students choose between two stimulating academic options. Students either participate in one of the specialized mini-courses (7-10 days long) arranged by one or more NCSSM faculty members, which include both on-campus courses and domestic or international trips. Students can also conduct an approved educational project of the student's own design with the sponsorship of an adult member of the NCSSM community. The goal is to support students in a rigorous exploration of a subject area of great interest to them in a way that contributes to their academic and personal growth and serve them well in their future academic aspirations. The Summer Service requirement at NCSSM has always been a staple since the school's beginning. The Summer Service Program allows students to give back to their home community in a variety of ways that can be catered around individual passions, hobbies, interests and possible careers. Students are expected to provide a minimum of 60 hours of service to a nonprofit organization within North Carolina during the summer of their Junior or Senior year. Students are also expected to complete 3 hours of work service per week for a department on campus. This program is designed to provide "job training", "soft skill development," and a mentoring opportunity with adults on campus. It also provides a valuable service to the NCSSM community. Students receive a grade each trimester (satisfactory/unsatisfactory) from his or her supervisor which is part of the student transcript.

INSTITUTIONAL MEMBERS

Math Courses/Electives: Pre-Calculus, Statistics (AP or other), Multivariable Calculus, Differential Equations, Discrete Math AP Calculus AB, AP Calculus BC, Finite Mathematics, Advanced Geometry, Numerical Analysis, Introduction to Complex Systems, Number Theory, Modeling with Matrices, Combinatorics and Game Theory, Graph Theory and Networks, Structure and Dynamics of Modern Networks, Mathematical Modeling, Group Theory

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, Anatomy and Physiology, Classical Genetics, Molecular Genetics, Developmental Biology, Evolution, Ecology, Aquatic Ecology, Climate Change Biology, Molecular and Cellular Biology, Immunology, AP Environmental Science, AP Biology, AP Chemistry, Analytical Chemistry, Organic Chemistry, Environmental Chemistry, Organic and Biochemistry, Polymer Chemistry, Astronomy, Modern Physics, AP Physics B, AP Physics C-Mechanics, AP Physics C-Electricity and Magnetism; Fluids, Thermodynamics, Electromagnetism, and Optics; Astrophysics; Galaxies and Cosmology, Introduction to Applied Chemistry and Engineering, Introduction to Computational Chemistry, Introduction to Medicinal Chemistry, Bioinformatics, Green Environmental Geology, Forensic Science

Technology Courses/Electives: Fundamentals of Engineering, Engineering Graphics, Introductory Robotics, Introduction to Engineering-Mechanical, Introduction to Engineering-Electrical, Architecture, Engineering the Modern, Biomedical Instrumentation, Statics

Research Courses/Electives: Research in Biology, Research in Chemistry, Research in Physics, Research in Mathematics, Research in Computational Science, Mentorship-Senior Research, Research Experience in Biology, Research Experience in Environmental Science, Research Experience in Applied Chemistry and Engineering, Research Experience Mathematical Chemistry, Research Experience in Physics, Research Experience in Computer Science, Research Experience in Humanities

Computer Science Courses/Electives: Java, C++, Python

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computational Linguistics Olympiad, First Robotics, or other robotics competitions, Brain Bee, Conrad, Exploravision, I-GEM, I-SWEEP, Singapore International Math Challenge, Singapore International Science Challenge, National Economics Challenge

Scholarship Awards: \$17,000,000

OHIO

Hathaway Brown School

19600 North Park Blvd.
Shaker Heights, OH
216.932.4214

Head of school: **Dr. Mary Frances “Fran” Bisselle** Head of School fbisselle@hb.edu 216.320.8774

Primary contact: **Dr. Crystal Miller** Director of the Center for Science & Engineering Research
cmiller@hb.edu 216.320.8761

Website address: <https://www.hb.edu/>

Total students enrolled: 380 in the Upper School (9-12)

School structure: Comprehensive full-day
Pre-K through 12

PROGRAMS OFFERED

Unique Offerings: Hathaway Brown School is an independent girls' school committed to the goal of lifelong learning, preparing students to enter that world poised and empowered to ask questions, challenge conventions, and make their own mark. Unique to HB is the Institute for 21st Century Education. At its most basic level, the Institute is an assortment of programs, or “Centers”, that students can join to more deeply experience a discipline that students explore in their core classes. Each Center helps students and teachers engage with the world's promises and problems. Students can pursue a diploma designation in Centers for Business and Finance, Sustainability, Technology and Invention, Creative Arts, and more.

HB, in its motto, “We learn not for School, but for Life,” set forth its responsibility to its students – that the education they receive within School walls is not only applicable in the classroom but also has ever more significant applications beyond graduation. Students in the Science Research & Engineering Program (SREP) conduct research with professional scientists and engineers to learn how to think critically about existing knowledge and ask questions to advance knowledge for the future. Over one-third of the Upper School, or about 130 students, participate in the SREP where each student partners with a professional scientific laboratory to develop their own research project. The SREP cultivates resourcefulness, technical aptitude, initiative, and communication as students navigate the challenges of developing, presenting, documenting and disseminating their own individual research project with an ultimate goal of empowering the student.

Math Courses/Electives: Intermediate Algebra and Geometry, Geometry, Advanced Algebra & Geometry, Algebra 2, Statistics and Precalculus, Precalculus AB Honors, Precalculus BC Honors, Intro to Calculus, Calculus 1, AP Calculus AB, AP Calculus BC, AP Statistics, Calculus 2 with Probability Theory Honors, Multivariable Calculus Honors, Linear Algebra Honors, Mathematical Problem Solving

Science Courses/Electives: Biology, Chemistry, Physics, AP Biology, AP Chemistry, AP Physics C: Mechanics, AP Environmental Science, Topics in Human Biology, Organic Chemistry, Engineering and Design Lab

Research Courses/Electives: Introduction to Science Research, Science Research & Engineering Seminar

Computer Science Courses/Electives: Exploring Computer Science, Computer Science: Programming Interactive Media, AP Computer Science Principles, AP Computer Science A, Post-AP Computer Science Honors

Participation in National Academic Competitions: Mu Alpha Theta National Convention, Regeneron Science Talent Search, Intel Science and Engineering Fair, First Robotics, American Mathematics Competition, Junior Science and Humanities Symposium, American Junior Academy of Sciences

Scholarship Awards: \$5,000,000

OKLAHOMA

Oklahoma School of Science and Mathematics at Ardmore Regional Center

1141 N. Lincoln Blvd
OKC, OK 73104
405.521.6436



Head of school: Frank Y. H. Wang President Frank.Wang@ossm.edu 405.522.7822

Primary contact: Suzanne Donnolo Director of Admissions and Registrar
suzanne.donnolo@ossm.edu 405.521.6436

Website address: www.ossm.edu

Total students enrolled: 140

School structure: Comprehensive full day residential (students live on campus)

PROGRAMS OFFERED

Unique Offerings: mentorship opportunities with labs and research facilities nearby; Hefner initiative providing 2 students free trip to China

Math Courses/Electives: Trigonometry, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, Real Analysis, Differential Equations, Abstract Algebra, Special Topics in Math, Statistics (AP or other), Multivariable Calculus, Linear Algebra, Differential Equations

Science Courses/Electives: Biology, Chemistry, Physics, computer science

Technology Courses/Electives: 1 course in computer science, computer networking introduction to geosciences, Object orienting programming Data Structures

Research Courses/Electives: research is encouraged by not required. Roughly half of the students apply for mentorships with area labs, research facilities, etc., Summer IRSP program (Independent Research Scholars Program)

Computer Science Courses/Electives: Object Oriented Programming Networking Introduction to Computing Data Structures, Java

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Chemistry Olympiad, Physics Olympiad

Scholarship Awards: \$7.8 million

INSTITUTIONAL MEMBERS

PENNSYLVANIA

Downington STEM Academy

335 Manor Ave.
Downington, PA 19335
610.873.7620

Primary contact: Art Campbell Director artcampbell@dasd.org
Website address: www.dasd.org/STEM



The Downington STEM Academy opened in the fall of 2011. The Academy is an IB World School offering every student the opportunity to earn an IB Diploma. The curriculum offers Science, Technology, Engineering and Mathematics Pathways. Students are engaged in rigorous, challenging academic work that requires a mindset of growth and effort.

SOUTH CAROLINA

Dutch Fork High School

1400 Old Tamah Rd.
Irmo, SC 29063

Head of school: Dr. Gerald Gary ggary@lexrich5.org 803.476.3300
Primary contact: Barry Lindler blindler@lexrich5.org 803.476.3479
Secondary contact: Susan Elvis STEM Coordinator seelvis@lexrich5.org
Website address: www.lexrich5.org/domain/3764



PROGRAMS OFFERED

Mission Statement: The purpose of STEM is to accelerate the traditional curriculum, promote inquiry-style learning across the curriculum, develop literacy in science, technology, engineering, and mathematics. In addition we provide unique opportunities outside the classroom environment for students through independent research, internships, field studies, and respected academic competitions.

Unique Offerings: The STEM (Science, Technology, Engineering, and Math) program at Dutch Fork High School is an honors magnet program that accelerates and enriches learning experiences for students who are academically gifted and have an interest in STEM related majors and careers.

The program began in the fall of 2005 with 17 students who were accepted based on their standardized test scores, middle school teachers' recommendations, and interest in STEM related fields.

Since the beginning, our program has been a local answer to the national STEM initiative. STEM accelerates the learning experience which enable students to pursue AP courses, research, and/or internships in a field of interest. A major focus is the integration of studies across the curriculum including STEM accelerated studies in Algebra II and humanities.

The STEM curriculum is designed to accommodate each student's interests and abilities. Upon completion of the STEM program, students are highly qualified for admission in the most rigorous and competitive university programs. Those students meeting the requirements will be recognized at graduation as STEM Scholars with Honors and receive the STEM program designation for recommendations and applications and scholarships.

Research: STEM students are distinguished from traditional honors program through their completion of a research course. Each research project is unique and based on the student's interest; therefore demonstrating the diversity and universal nature of STEM. STEM students begin their research during their junior year. The research courses provide students with unique opportunities to pose a research question and then design and implement an experiment. Students defend and support their results at a series of professional conferences and science fairs.

Internships: STEM students are encouraged to participate in an internship or fellowship to prepare for research. All internships must be approved by the STEM Committee. The intern must complete at least 80 hours of work and a daily journal of duties, as well as write a reflection paper which will be submitted to the STEM Committee for review. Students are encouraged to seek these internships in the fall semester of their junior year for completion during the summer.

Community & Outreach: In the STEM program the students are a part of a community of learners who are involved in STEM-related field trips, participate in school events planned for STEM students, and have the opportunity to travel together to the locations such as Costa Rica and the Galapagos Islands.

Math Courses/Electives: Algebra 2 HN, Pre-Calculus HN, AP Calculus AB, AP Calculus BC, AP Statistics, Vector Calculus (USC), Elementary Differential Equations (USC)

Science Courses/Electives: Physical Science HN, Biology 1 HN, Chemistry 1 HN, Honors Marine Science, AP Seminar, AP Research, AP Biology, AP Chemistry, AP Physics B, AP Physics C, AP Environmental Science, AP Psychology, Human Body Systems HN, Principles of Biomedical Science HN, Medical Interventions & Research HN, Biomedical Innovations & Research HN, Agricultural & Biosystems, Science HN, Animal Science HN, Equine Science HN, Small Animal Care HN, Intro to Veterinary Science HN, Intro to Veterinary Science Research HN

Technology Courses/Electives: Computer Programming 1 HN, AP Computer Science, Computer Programming 2 HN, Oracle 1 Database Design & Programming HN, Oracle 2 Database Programming PL/SQL HN, CyberSecurity Fundamentals HN, Advanced Cyber Security HN, Biosystems Technology 1 HN, Biosystems Technology 2 HN, Introduction to STEM & Technology Systems 1 HN, Introduction to STEM & Technology Systems 2 HN

Engineering Courses/Electives: Biotechnical Engineering HN, Introduction to Engineering Design HN, Principles of Engineering HN, Digital Electronics HN, Civil & Architectural Engineering HN, Engineering Design & Development, Alternative Energy Systems HN, Alternative Energy Applications HN, Advanced Energy Applications HN, Energy Research & Development HN, Biosystems Mechanics & Engineering HN, Aerospace Engineering HN

South Carolina Governor's School for Science and Mathematics

401 Railroad Ave.
Hartsville, SC 29550



SOUTH CAROLINA GOVERNOR'S SCHOOL
for Science & Mathematics

Head of school: Dr. Hector Flores flores@gssm.k12.sc.us
Primary contact: Danny Dorsel dorsel@gssm.k12.sc.us 843.383.3900
Website address: www.scgssm.org
Total students enrolled: 288
School structure: Residential, 11th and 12th grade only (students live on campus)

PROGRAMS OFFERED

Unique Offerings: The Governor's School for Science & Mathematics (GSSM) is one of only 12 public, residential high schools specializing in the advanced study of science, technology, engineering and mathematics in the country, and the only one located in South Carolina. Since its launch in 1988, GSSM has graduated over 1,600 alumni from every county in South Carolina, many of whom are now leaders in such critical fields as engineering, medicine, law and business. GSSM's curriculum offers 48 different STEM courses; a six-week mentored scientific or economic research program in SC, US, Europe and Asia; and national and international travel opportunities. Eighty percent of the faculty hold Ph.D.'s and 100 percent hold master's degrees. GSSM currently serves 288 11th and 12th graders.

GSSM's Center for Science Education and Outreach delivers hands-on, minds-on STEM programming and enrichment initiatives to middle and high school teachers and students across the state. Through residential camps, statewide day camps and teacher training sessions, GSSM's outreach programs reach 25,000 students and teachers in more than 100 schools statewide.

To address the shortage of in-state engineers, GSSM created Accelerate, a virtual engineering program for 10th, 11th and 12th graders to earn the first year of college credits during high school. GSSM is partnering with the state's school districts, industry leaders and top engineering colleges to deliver Accelerate. Complemented by real-world, team-based projects on weekends and summers, as well as industry internships, Accelerate is a unique and innovative approach toward addressing the needs of South Carolina's leading businesses.

GSSM is constantly working to deliver top-quality STEM education to all corners of the state.

Math Courses/Electives: Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, AP Statistics, Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math, Abstract Algebra, Number Theory and Regression Analysis

Science Courses/Electives: AP Biology, AP Chemistry and Principles of Chemistry, AP Physics C, AP Physics I and Introduction to Physics, AP Environmental Science, Electives: Computational Physics, Modern Physics, Astronomy, Organic Chemistry, Neuroscience, Vertebrate Biology, Molecular Biology, Advanced Genetics, Human Anatomy and Physiology, Microbiology, Botany, Biological Evolution, Fluids-Thermodynamics-and Optics, Analytical Chemistry, Biochemistry

INSTITUTIONAL MEMBERS

Technology Courses/Electives: Applications of Engineering Design, Engineering Mechanics: Statics, Engineering: Electronics, Engineering: SolidWorks, Engineering: Product Design

Research Courses/Electives: 6 weeks of mentored research including a paper and presentation, on-campus Scientific Investigations

Computer Science Courses/Electives: AP Computer Science, Robotics, Introduction to Computer Graphics Using Python, Programming Interaction and Visual Design, Application Design and Implementation using C++ and Linux, Data Structures using Java, Introduction to Artificial Intelligence, and Game Design

Dual Enrollment: Yes – At school, taught by college/university staff

Participation in National Academic Competitions: Zero and First Robotics, or other robotics competitions, Math modeling, Science Bowl, History Bowl, Model UN, FBLA, Academic Teams, Math Team, Youth in Government, Mock Trial, French and Spanish Honor Society

Scholarship Awards: \$21.4 million

Spring Valley High School

120 Sparkleberry Lane
Columbia, SC 29229
803.699.3500 x69208



**SPRING VALLEY
HIGH SCHOOL**



Head of school: Jeff Temoney jtemoney@richland2.org

Primary contact: Dr. Michelle Wyatt mwyatt@richland2.org 803.699.3500 x69208

Website address: www.richland2.org/svh

Total students enrolled: 320

School structure: School within a school (program open to local school district and/or to a magnet population)

PROGRAMS OFFERED

Unique Offerings: The **Discovery Magnet Program** is a four year, rigorous, honors/AP program designed for students with special motivation, interest, aptitude, and commitment to the study of science and math. Students focus on problem-based learning with an emphasis on both the theory and application of science and mathematics. While maintaining the normally intensive honors level courses of the traditional high school curriculum, Discovery students engage in individualized laboratory based research during their sophomore and junior years under the guidance of a school or community mentor. Many students are awarded scholarships based on their participation in these competitions, and they may move on to compete at national and international levels. These projects and competitions are completed in time for students to include this information in college and scholarship applications during their senior year.

The **Explorations Magnet Program** is a four year, college preparatory program designed with an emphasis on the science, mathematics, and communication skills needed to compete in the technological career areas of the future. Explorations students participate in problem-based learning, both in the classroom through a common theme of forensic science and in apprenticeship positions in their area of career interest. Students in the program are required to complete a 200-hour internship during the summer between their junior and senior year or during their senior year with a business in the community that will give them the opportunity to explore their chosen career field. During this internship, the student refines skills in communication, decision making, problem-solving, organization, and other areas pertinent to the chosen career.

Spring Valley High School was named a 2017 National Magnet School of Distinction and for both 2018 and 2019 a National Magnet School of Excellence by Magnet Schools of America, the national association for magnet and theme-based schools.

Math Courses/Electives: Algebra I, Geometry, Algebra II, Algebra III, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, Probability and Statistics, AP Statistics

Science Courses/Electives: AP Biology, AP Chemistry, AP Physics, AP Environmental Science

Computer Science/Engineering Courses/Electives: Exploring Computer Science, AP Computer Science A (Java, Open Source/Linux, C++, Python, Ruby, Google webtoolkit, PC scheme), Introduction to Engineering, Pre-Engineering, Digital Electronics, Engineering Design and Development

Research Courses/Electives: Science Seminar, Pre-Research, Research 1, Research 2, Research 3, two years (option of three years) of independent research on student-chosen topics

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: Regeneron Science Talent Search, National Junior Science and Humanities Symposium, Intel International Science and Engineering Fair (ISEF), VEX Robotics teams, HOSA: Future Health Professionals Chapter, Mu Alpha Theta Mathematics Honor Society/Math Team, American Mathematics Association Competition, Mock Trial, Science National Honor Society, National French Honor Society, National Latin Honor Society, National Spanish Honor Society, National Art Honor Society, National Technical Honor Society, National Thespian Honor Society

Scholarship Awards: Over \$24,000,000 for the Class of 2016 Magnet students

TEXAS

Academy for Careers in Engineering and Science

27310 Oak Ridge School Rd.
Conroe, TX 77385

Website address: aces.conroeisd.net

Academy for Science & Health Professions Conroe ISD

3200 West Davis
Conroe, TX 77304

Head of school: **Dr. Mike Papadimitriou** Headmaster, ASHP mpapadimitriou@conroeisd.net 936.709.5731

Website address: ashp.conroeisd.net

Total students enrolled: 350

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
School within a school (program open to local school district and/or to a magnet population)
4-year program (grades 9-12)

PROGRAMS OFFERED

Unique Offerings: Scientific Research and Design Class, Explorations, Internship, Lectures, Tours and Trips, Research and Problems opportunities, mentorship

Math Courses/Electives: Algebra I, Geometry, Algebra II, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, Statistics, AP Statistics

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, Organic Chemistry, AP Chemistry, AP Physics, AP Biology

Technology Courses/Electives: Computer Science Pre-AP, AP Computer Science or other elective, Independent Study

Research Courses/Electives: Scientific Research and Design, Independent Study in Math, Independent Study in Computer Science

Computer Science Courses/Electives: Computer Science pre-AP, Java, AP Computer Science Principles, AP Computer Science A

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, First Robotics, or other robotics competitions, North America Envirothon, Intel ISEF, Destination Imagination Globals

Academy of Science & Technology Conroe ISD

3701 College Park Drive
The Woodlands, TX 77384

Head of school: Dr. Susan Caffery Headmaster scaffery@conroeisd.net 936.709.3250

Website address: cpast.conroeisd.net

Total students enrolled: 300

School structure: School within a school (program open to local school district and/or to a magnet population)



PROGRAMS OFFERED

Unique Offerings: Scientific Research and Design Class, Explorations, Internship, Lectures, Tours and Trips, Research and Problems opportunities, mentorship

Math Courses/Electives: Algebra I, Geometry, Algebra II, Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, Statistics

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, AP Chemistry, AP Physics, AP Biology

Technology Courses/Electives: Computer Science Pre-AP, AP Computer Science or other elective, Independent Study

Research Courses/Electives: Scientific Research and Design, Independent Study in Math, Independent Study in Computer Science

Computer Science Courses/Electives: Computer Science pre-AP, Java

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, First Robotics, or other robotics competitions, North America Envirothon, Intel ISEF, Destination Imagination Globals

Please note the following:

- AP Statistics is offered as a math course
- Organic Chemistry is offered as a science course
- Our computer science is changing. We now offer AP Computer Science Principles and AP Computer Science A.

John Jay Science and Engineering Academy

7611 Marbach Rd.
San Antonio, TX 78227
210.397.2773

Head of school: Teresa Cuellar-Hernandez Principal teresa.cuellar@nisd.net
210.397.2773

Website address: www.nisd.net/sciaca

Total students enrolled: 650

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
School within a school (program open to local school district and/or to a magnet population)



PROGRAMS OFFERED

Unique Offerings: Students are required to take pre-AP and AP courses in all core subjects with several upper-level science courses with support/ties to local universities as well as several engineering architecture and robotics course offerings using professional software (Auto CAD, Revit, etc.) and advanced technologies (3-D printer, CNC mill, programmable robotic arm, wind tunnel, etc.) available based on career interests. All students complete at least one academic research project each year evaluated by a panel of experts in the field. Top projects go on to compete at numerous regional, state, and international science and engineering competitions. Numerous extracurricular activities including: ACE Mentor Program, Creative Writers Retreat, CyberPatriot Team, History Fair, Science Bowl, Quiz Bowl, UIL, etc.

Math Courses/Electives: Algebra I, Geometry, Algebra II, Pre-Calculus, Statistics (AP or other), AP Calculus AB, AP Calculus BC, Dual-Credit College Algebra, Dual-Credit Pre-Calculus

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, Anatomy and Physiology, AP Biology, AP Chemistry, AP Environmental Science, Medical Microbiology, Pre- AP Physics, AP Physics B, AP Physics C: Mechanics, Pathophysiology, Science Research and Design

Technology Courses/Electives: Concepts of Engineering, Advanced Engineering Design and Presentation Architectural Design, Engineering Design and Presentation, Engineering Design and Problem Solving, Robotics & Automation, Web Technologies

Research Courses/Electives: Concepts of Engineering, Science Research and Design, Independent Study Mentorship

Computer Science Courses/Electives: Java, C++

Dual Enrollment: Yes – At school, taught by school staff

On Ramps: Dual enrollment opportunities through the University of Texas at Austin

Participation in National Academic Competitions: American Junior Science and Humanities Symposium, Intel International Science and Engineering Fair (ISEF), International Sustainable World (Engineering, Energy, Environment) Project Olympiad, FIRST Robotics, HOSA: Future Health Professionals Chapter, National Honor Society, National Spanish Honor Society, National French Honor Society, National History Day

Scholarship Awards: \$17,000,000

Liberal Arts and Science Academy (LASA)

7309 Lazy Creek Dr. Suite 225

Austin TX, 78724

512.414.5272

Head of school: **Stacia Crescenzi** Principal screscen@austinisd.org

Primary contact: **Andy Paulson** andy.paulson@austinisd.org

Website address: **www.lasahighschool.com**

Total students enrolled: **1,232**

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: A STEAM school since 2002, LASA encourages every student to take advanced courses in all academic areas. We focus on the whole student and have created four required Signature Courses. During Freshman year students take Sci Tech; an applied engineering course where they work in teams to design and build a simple machine that completes a task and E-Zine; an original course that combines newspaper experiences with graphic design skills allowing every student to be a published author by the end of the year. Sophomores take Great Ideas; an exploration of the big questions philosophers have debated for centuries and Planet Earth; a field study class where students take research questions from concept through conclusion and publication. Although best known for unique science and math offerings such as Biochemistry 1&2, Organic Chemistry, Linear Algebra and Number Theory, as well as integrative courses including Logic, Computer Programming and Digital Electronics that apply science and math skills, we also offer six World Language options through level 5 and a fine arts department that includes an orchestra that played Carnegie Hall and a theater troupe that performed productions as large as Phantom of the Opera. We pride ourselves on the fact that LASA allows all students to delve deeper in their area of interest while encouraging them to struggle academically in areas where they feel less at ease.

Math Courses/Electives: Algebra I, Geometry, Algebra II, 4th math of your choice, PreCalculus, AB/BC Calculus, Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math, Number Theory, Logic, Advanced Mathematical Reasoning, AP Statistics

Science Courses/Electives: Biology, Chemistry, Physics, 4th Science of your choice, Sci Tech, Planet Earth, Organic Chemistry, Biochemistry, AP Biology, AP Chemistry, Anatomy & Physiology, Medical Micro, Pathophysiology, Biotechnology, Forensic Science, Wicked Problem Project, Advanced Engineering Design, Astronomy, AP Environmental Science

Technology Courses/Electives: Choice from the electives, AP Comp Sci, Computer programming, Advanced computer programming, Networking, Web Applications, Digital Electronics, Advanced Video Production

Computer Science Courses/Electives: Java, Open Source/Linux, C++, Python, Oracle

Dual Enrollment: Yes – At school, taught by school staff. At the college/university, taught by college/university staff.

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Physics Olympiad, Computational Linguistics Olympiad, First Robotics, or other robotics competitions, Quiz Bowl, Science Olympiad, iGEM

Scholarship Awards: over \$33 million

School of Science and Engineering

1201 E. 8th St.
Dallas, TX 75203
972.925.5960

Head of school: **Andrew Palacios** Principal ANPALACIOS@dallasisd.org 972-925-5964
Website address: <https://www.semagnet.org/>
Total students enrolled: 500

PROGRAMS OFFERED

Unique Offerings: Science and Engineering Magnet (SEM) is a college preparatory public high school, which was created in 1982. The school serves 500 students in grades nine through twelve. All SEM students are required to participate in a comprehensive Pre-Advanced Placement and Advanced Placement curriculum.

The school has been named among the highest-performing high schools in the country according to national publications' rankings (U. S. News & World Report, Newsweek, Washington Post). In 2005 & 2011, the school was named National Blue Ribbon School of Excellence by the United States Department of Education. SEM won the 2012 Intel School of Distinction Award for the Best High School Math Program in the Country.

Texas Academy of Math and Science

1155 Union Circle #305309
Denton, TX 76203
940.565.3971

Head of school: **Dr. Glênisson de Oliveira** Dean of TAMS glenisson.deoliveira@unt.edu
Primary contact: **Teresa Brooks** Administrative Coordinator teresa.brooks@unt.edu
Website address: tams.unt.edu



PROGRAMS OFFERED

Located at the University of North Texas, the Texas Academy of Mathematics and Science (TAMS) was created by the Texas Legislature in 1987 to provide an opportunity for talented students to complete their first two years of college while earning a high school diploma. Students enroll in the academy after their sophomore year of high school, live in an exclusive residence hall, and attend regular UNT courses. Their classmates are UNT undergraduate and graduate students. At the end of two years, TAMS students receive high school diplomas and approximately 60 hours of college credit. Academy graduates may stay at UNT or transfer to other universities to complete their bachelor's degree.

UTAH

SUCCESS Academy at Dixie State University - DSU Southern Utah Center for Computer, Engineering and Science Students (SUCCESS)

225 S. 700 E. St
George, UT 84770

Head of school: **John Tripp** Director/Principal johntripp@successacademy.org
435.865.8790 435.652.7830

Website address: www.successacademy.org

Total students enrolled: 225

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
Located on a University campus
School within a school (program open to local school district and/or to a magnet population)
3-year program (grades 10-12)



PROGRAMS OFFERED

Unique Offerings: Research Course, Computer Information Technology Cohort, Partnerships with both Washington County School District and Dixie State University, students take STEM courses of their choice on DSU Campus Senior year taught by University Professors

Math Courses/Electives: Algebra I, Algebra II, Pre-Calculus, Trigonometry, Statistics (AP or other), Calculus 1, Calculus 2

Science Courses/Electives: Biology, Chemistry, Physics

Technology Courses/Electives: Computer Tech, Computer Science, Computer Programming, Engineering

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: Intel ISEF, First Robotics or other robotics, IJSHS, NCWIT, Conrad Spirit of Innovation Challenge, Intel Science Search

SUCCESS Academy at Southern Utah University - SUU Southern Utah Center for Computer, Engineering and Science Students (SUCCESS)

351 West University Boulevard
Cedar City, UT 84720

Head of school: John Tripp Director/Principal johntripp@successacademy.org 435.865.8792

Website address: www.successacademy.org

Total students enrolled: 207

School structure: Half-day program (students take STEM course, then return to another school for other courses)



PROGRAMS OFFERED

Math Courses/Electives: Algebra I, Geometry, Algebra II, Trigonometry, Pre-Calculus, Trigonometry, Statistics (AP or other), Business Math, Multivariable Calculus, Linear Algebra, Differential Equations, Discrete Math

Science Courses/Electives: Biology, Chemistry, Physics, Earth Science

Dual Enrollment: Yes – At the college/university, taught by college/university staff

Participation in National Academic Competitions: Intel Science Search, American Mathematics Association Competition Chemistry Olympiad, Computational Linguistics Olympiad

VERMONT

Essex High School

2 Educational Drive
Essex Junction, VT 05452
802.857.7213

Head of school: Robert Reardon Principal rreardon@ccsuvt.org

Primary contact: Lea Ann Smith STEM Academy Leader lsmith@ewsd.org

Website address: www.ewsd.org/stemacademy

PROGRAMS OFFERED

Unique Offerings: Essex High School is a public secondary school enrolling approximately 1251 students in grades 9 through 12.

The STEM Academy is designed to support students interested in building a strong foundation in the STEM content areas and providing students with the opportunity to explore connections across different disciplines through additional experiences. The Academy gives students an opportunity to explore their passion in the areas of science, technology, engineering and mathematics. Students in the Academy will engage in a self reflection and creation process that will allow them to gain insights into their interests. In addition to a rigorous experience within EHS science and math courses, students will be exposed to a broad range of opportunities in the STEM disciplines that they will synthesize into a final, culminating project. Digital age skills will be emphasized throughout the STEM experience. This program has been created in conjunction with an advisory board consisting of representatives from institutions including UVM, GlobalFoundries and Champlain College.

VIRGINIA

Academies of Loudoun

41977 Loudoun Academy Drive
Leesburg, VA 20175

Head of school: **Dr. Tinell L. Priddy** Principal tinell.priddy@lcps.org
571.252.1980

Website address: **www.lcps.org/aol**



The mission of the Academies of Loudoun is to empower students to explore, research, collaborate, innovate, and to make meaningful contributions to the world in the fields of science, technology, engineering, and mathematics (STEM). The Academy of Engineering & Technology provides students the opportunity for deep learning in engineering, information technology, and entrepreneurship in (2) two-year curricular programs (one for 9th & 10th graders, and one for 11th & 12th graders). The Academy of Science provides a four-year curriculum experience for students to engage in mathematics, science, and research which promotes innovation, problem-solving, and collaboration. Monroe Advanced Technical Academy, a Governor's School CTE Academy, provides significant and relevant learning in Career & Technical Education (CTE) which allows students to explore and innovate while preparing for 21st century college and careers.

PROGRAMS OFFERED

Academy of Engineering & Technology
Academy of Science
Monroe Advanced Technical Academy

Central Virginia Governor's School for Science and Technology

3151 Wards Ferry Rd.
Lynchburg, VA 24502

Head of school: **Stephen C. Smith, Ed.D.** Director
ssmith@cvgs.k12.va.us 434.477.5980

Website address: **www.cvgs.k12.va.us**

Total students enrolled: **132**

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: Year-long research course, 36 hour internship program, Technology Lab course

Math Courses/Electives: Pre-Calculus, Single and Multivariable Calculus, Discrete Math

Science Courses/Electives: Physics, Human Anatomy & Physiology, and Computer Science using Python

Technology Courses/Electives: Senior Seminar Technology Lab

Research Courses/Electives: Junior Research Course, Independent research opportunities (non-credit) for seniors

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Intel Science Search

Scholarship Awards: Annually about 65 graduates receive offers totaling between 3 and 6 million dollars in scholarships/aid, and they are actually able to take advantage of about \$2 million.

In existence since 1985, the Central Virginia Governor's School for Science and Technology (CVGS) is a half-day program for academically gifted high school juniors and seniors. Our students are selected from ten high schools throughout our region. We offer math, science, and technology courses in the mornings, then students return to their home high schools for English, history, and electives in the afternoons. CVGS's mission is to be a dynamic educational community exploring the connections among mathematics, science and technology and to develop leaders who possess the research and technical skills, the global perspective,

and the vision needed to address the challenges of a rapidly changing society. The curriculum is designed to provide a challenging academic program which enables students to develop independent learning strategies to ensure success in competitive four year colleges and universities and beyond.

Chesapeake Bay Governor's School for Marine & Environmental Science

P. O. Box 1410
202 South Church Lane
Tappahannock, VA 22560

Head of school: Dr. Terri L. Perkins Director tperkins@cbgs.k12.va.us 804.443.0267

Website address: www.cbgs.k12.va.us

Total students enrolled: 250

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
3-year program (grades 10-12)



PROGRAMS OFFERED

Unique Offerings: Fall Field Studies - Trips that support the Marine & Environmental Science curriculum --Competitions: Envirothon, RCC Math Competition, Blue Crab Bowl, Virginia Junior Academy of Science --Two-Year Research Project - culminates in the Senior year with a required presentation in a conference setting

Math Courses/Electives: Algebra II, Pre-Calculus, Calculus, Statistics

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science, Marine & Environmental Science I & II; Foundations of Science

Scholarship Awards: \$3.5 million

Governor's School @ Innovation Park

10900 University Blvd
MS6D10 Discovery Hall, Room 175
Manassas, VA 20110

Head of school: Jason Calhoun Director wcalhoun@gmu.edu 703.993.7027

Website address: governors.pwcs.edu

Total students enrolled: 116

School structure: Partial day program (students take STEM courses at GS@IP in the morning, then return to another school for other courses)
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: Courses taught at George Mason University, a location that offers unique opportunities for students to focus on real-world research experiences with possibilities for mentors from local engineering firms and scientists from the university.

Math Courses/Electives: Pre-Calculus, Honors Calculus I through III, Linear Algebra

Science Courses/Electives: Introduction to College Biology I/II, Introduction to College Chemistry I/II, College Physics I/II, University Physics I/II, Microbiology/Anatomy, Introduction to Organic and Biochemistry, Introduction to Environmental Chemistry

Technology Courses/Electives: Must take two semesters selected from: Foundations of Technology; Electrical Engineering;Multimedia Communications;Materials of Science

Engineering and Technology Courses/Electives: Introduction to Engineering, Geomatics and Engineering, Inventions and Innovations

Research Courses/Electives: Introduction to Research for Juniors, and Senior Research Year-Long experience

Dual Enrollment: Yes, through George Mason University; taught by GS@IP faculty vetted through George Mason University

Online Courses: Yes, Bioengineering course with dual enrollment credit through George Mason University

Participation in National Academic Competitions: Siemens We Can Change the World Challenge, Real World Design Challenge, American Mathematics Association Competition, National Ocean Sciences Bowl

New Horizons Governor's School for Science and Technology

520 Butler Farm Road
Hampton, VA 23666

Head of school: **Vikki Wismer** Director vikki.wismer@nhrec.org
757.766.1100 ext: 3313

Website address: <https://nhrec.org/gsst/>

Total students enrolled: 180

School structure: Half-day program (students take STEM courses, then return to another school for other courses)
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: Primary goal of GSST is to provide students with an opportunity to conduct serious scientific research. All students take a junior year course in Research Methods and Ethics, which introduces research methodology, statistics, critical thinking skills, and skills of scientific writing and presentation. Senior year, students design and conduct a year-long research project under the direction of a scientific, engineering, medical or other professional in the community. The field component is supported by formal course work which guides students through the entire process, from the selection of a problem to final presentation. In addition to their outside mentor, each student is assigned a faculty advisor to assist and evaluate mentorship research

Math Courses/Electives: Pre-Calculus, Calculus, AP Calculus AB, AP Calculus BC, Statistics (AP or other), Multivariable calculus, Linear Algebra, Differential Equations

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science

Research Courses/Electives: Research Methodology & Ethics, Research Applications / Honor Mentorship

Computer Science Courses/Electives: Scientific Programming I and II, Java, Open Source/Linux, C++

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, First Robotics, or other robotics competitions

Scholarship Awards: \$8.5 Million

Shenandoah Valley Governor's School

49 Hornet Rd.
Fishersville, VA 22939

Head of school: **Lee Ann Whitesell** Program Director whitesell@svgs.k12.va.us 540.245.5088

Website address: www.svgstudentnews.wordpress.com

Total students enrolled: 225

School structure: Half-day program (students take STEM courses, then return to another school for other courses)



PROGRAMS OFFERED

Unique Offerings: Electric Vehicle Program, First Robotics, International Exchange - Romania, Mentorship

Math Courses/Electives: Pre-Calculus, Calculus, AP Calculus BC, Statistics (AP or other), Multivariable Calculus, Discrete Math

Science Courses/Electives: Biology, Chemistry, Physics, Environmental Science

Technology Courses/Electives: Scientific Research or Engineering, Advanced Technology AP Computer Science Computer Software Operations/Security Geospatial Information Systems Engineering II

Research Courses/Electives: Scientific Research/Engineering

Computer Science Courses/Electives: Java

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: First Robotics, or other robotics competitions

Scholarship Awards: \$1.2 million

Southwest Virginia Governor's School

100 Northwood Drive
Pulaski, VA 24301

Head of school: **Rebecca Phillips** Director and Biology Instructor
rphillips@swvgs.us 540.440.5510

Website address: **www.swvgs.edu**

Total students enrolled: **140**

School structure: Half-day program (students take STEM courses,
then return to another school for other courses)
2-year program (grades 11-12)



PROGRAMS OFFERED

Unique Offerings: At SWVGS, there is a focus on understanding the process of science and the use of the scientific method to reveal new knowledge. Students are required to take the Science and Technology Seminar and Project course each year they attend SWVGS and all students complete independent research projects each year. Additionally, the process of scientific discovery and the impact of significant discoveries are discussed within specific science courses. Experience with research develops critical thinking and problem solving skills, skepticism and curiosity about the world, ability to acquire and apply knowledge, joy of discovery, persistence, time management skills, a strong work ethic, and intellectual integrity, as well as collaborative, leadership, and communication skills. SWVGS leads students to solve math problems independent of a calculator. Students are encouraged to understand and practice the steps of completing calculations by hand. Development of proficiency in solving fractions, equations, factoring, etc. is a high priority. Students are asked to use mathematics to analyze data, understand scientific principles, and explore relationships among different fields of knowledge. Knowledge of basic facts and proficiency in applying basic skills allow students to understand what they are doing, make connections, and give meaningful interpretations of their results. Understanding how to use a variety of mathematical tools independent of a calculator gives students the self-confidence to think for themselves, analyze new and more complex problems, determine appropriate strategies for solving those problems, and then apply those strategies. Thinking conceptually, using logical reasoning, and making connections are skills that lead to success not only in SWVGS math and science classes, but also in college classes and in the workplace. The SWVGS compacted curriculum model is designed to challenge gifted students. Faculty members work to actively engage students in learning through demonstrations, projects, lab experiments, and group experiences. Development of problem solving and critical thinking skills are emphasized as students complete their dual-enrolled courses. Governor's School students are part of a community of similarly motivated and talented learners. Students like the atmosphere at SWVGS and enjoy being in classrooms filled with other students who are focused on learning and achieving.

Math Courses/Electives: Calculus, Statistics is required and we teach other classes listed but not all students have to complete those if their skills are beyond those courses. Trigonometry, Business Math, Multivariable Calculus, Linear Algebra, Differential Equations

Science Courses/Electives: Biology I/II, Anatomy I/II, Biotechnology Concepts, Chemistry I/II, Environmental Science, College Physics, University Physics, Solar System and Galactic Astronomy, Technology Seminar, Human Heredity, Immunology, and Biological Problems in Contemporary Society.

Technology Courses/Electives: Science and Technology Seminar and Project 198 and 298

Research Courses/Electives: Science and Technology Seminar and Project 198 and 298

Computer Science Courses/Electives: Java, Open Source/Linux, Python

Dual Enrollment: Yes – At school, taught by school staff

Participation in National Academic Competitions: Intel Science Search, American Mathematics Association Competition, Math Kangaroo Competition

Scholarship Awards: \$1,500,000

The Math & Science High School at Clover Hill

13301 Kelly Green Lane
Midlothian, VA 23112

Head of school: Sloan Burns sloan_burns@ccpsnet.net

Website address: www.mathsci.info

Total students enrolled: 400

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
School within a school (program open to local school district and/or to a magnet population)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Research competitions, integrated mathematics, math modeling competition, historical research, arts and aesthetics, Shakespeare productions, the curriculum of critical thinking, literary analysis

Math Courses/Electives: Geometry, Algebra II, Trigonometry, Pre-Calculus, AP Statistics, Linear Algebra, Differential Equations, AP Calculus AB and BC, advanced math modeling

Science Courses/Electives: Biology, Chemistry, AP Physics 1, Environmental Science, Field Biology, Engineering, AP Bio, AP Chem, AP Physics C, AP Environment Science, Anatomy

Technology Courses/Electives: One year of programming C++ or Java, AP Comp. Science Principles, AP Comp. Science A, DE Engineering

Research Courses/Electives: 3 years of research is required, conducted in core science, historical research, scientific research and dual enrollment biology classes

Computer Science Courses/Electives: Java, C++, AP Computer Science A, AP Computer Science Principles

Dual Enrollment: Yes – At school, taught by school staff. At school, taught by college/university staff.

Participation in National Academic Competitions: Siemens Competition in Math, Science, and Technology, Intel Science Search, American Mathematics Association Competition, First Robotics, or other robotics competitions

Scholarship Awards: \$2,064,121

Thomas Jefferson High School for Science and Technology

6560 Braddock Rd.
Alexandria, VA 22312

Head of school: Ann N. Bonitatibus Principal anbonitatibu@fcps.edu 703.750.8300

Primary contact: Brandon Kosatka Director of Student Services bpkosatka@fcps.edu
703.750.8372

Website address: www.tjhsst.edu

Total students enrolled: 1,774

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
4-year program (grades 9-12)



PROGRAMS OFFERED

Unique Offerings: Mentorship program, research laboratories, activities period

Math Courses/Electives: Geometry, Algebra II with Trigonometry and Data Analysis, Pre-Calculus, AP Calculus AB/BC, AP Statistics, Multivariable Calculus, Linear Algebra, Differential Equations, Advanced Mathematical Techniques, Mathematics of Finance, Complex Variables, Cryptography

Science Courses/Electives: Biology, AP Biology, Marine Biology, DNA Science I and II, Neurobiology, Bionanotechnology, Chemistry, AP Chemistry, Organic Chemistry with Instrumental Analysis, Physics, AP Physics B and C, Computational Physics, Optical Systems and Phenomena, Relativity, Electrodynamics, and Quantum Mechanics, Geosystems, The Solar System, The Universe, Physiology and the Arts

Technology Courses/Electives: Design and Technology (Integrated Biology, English, and Technology), Prototyping I and II, Energy Systems I and II, Engineering Design, Robot Design and Prototyping, Microcontroller Based Systems, Analog Electronics, Digital Electronics, Data Stream, Signal Processing, Audio Electronics, Microprocessor System Design, Specialized Computer Assisted Design, Introduction to Engineering, Architectural Drawing and Design

Research Courses/Electives: Senior research year-long projects in one of the following areas: Astronomy, Automation and Robotics, Chemical Analysis and Nanochemistry, Communication Systems, Computer Systems, Energy Systems, Engineering Design, Life Science and Biotechnology, Microelectronics, Mobile and Web Application Development, Neuroscience, Oceanography and Geophysical Systems, Prototyping and Engineering Materials, Quantum Physics and Optics

Computer Science Courses/Electives: Foundations of Computer Science (Java or Python), AP Computer Science A w/ Data Structures, Artificial Intelligence I and II (Python), Parallel Programming I and II (C), Mobile Application Development (Java), Web Application Development

Dual Enrollment: At the college/university, taught by college/university staff.

Online Courses: Credit transfer if student registers for George Mason University credit as well.

Participation in National Academic Competitions: Regeneron, American Mathematics Association Competition, Biology Olympiad, Chemistry Olympiad, Physics Olympiad, Computer Linguistics Olympiad, First Robotics, BotBall

Scholarship Awards: more than \$8,000,000

WASHINGTON

Camas Math, Science, Technology Magnet Program

26900 SE 15th Street
Camas, WA 98607
360.433.5504

Head of school: **Tom Morris** MST Magnet Program Principal
tom.morris@camas.wednet.edu

Website address: <http://chsmstmagnet.com/>

Total students enrolled: 120

School structure: Comprehensive full-day (students take STEM and non-STEM courses)
Program within a school model open to local and neighboring school districts and/or to a magnet population
4-year program (grades 9-12)



PROGRAMS OFFERED

Students work within a cohort model, traveling with the same grade-level cohort peers through scripted course offerings in grades 9-10, while grades 11-12 offer advanced topic choices from the comprehensive schedule.

Unique Offerings: Internship opportunities that include outlets for authentic, original research projects

Math Courses/Electives: Geometry, Accelerated Algebra II, Accelerated Pre-Calculus (or Pre-Calculus), AP Calculus AB/BC, AP Statistics, Multivariable Calculus

Science Courses/Electives: AP Environmental Science, AP Biology, AP Chemistry, AP Physics 1, AP Physics C

Technology Courses/Electives: Principle of Technology, Robotics, AP Computer Science A, C++

Research Courses/Electives: MST Research 9, 10, 11, & 12

Computer Science Courses/Electives: Computer Science A, C++

Dual Enrollment: Both Dual Enrollment and College in the Classroom through CWU and various local institutions of higher education.

Participation in National Academic Competitions: Science Olympiad, Biology Olympiad, Physics Olympiad, First Robotics, ISEF, Knowledge Bowl, and Envirothon

Scholarship Awards: \$40,000

ASSOCIATE MEMBERS

CALIFORNIA

Western Center Academy

GEORGIA

North Gwinnett High School

ILLINOIS

Elmhurst Community Unit School District (York HS)

MARYLAND

Anne Arundel County Public Schools- Central Middle School
Anne Arundel County Public Schools- Lindale Middle School
Anne Arundel County Public Schools- Old Mill Middle South

MASSACHUSETTS

Holy Name Central Catholic Junior/Senior High School
Northbridge High School

SOUTH CAROLINA

West Florence H.S.

TEXAS

Cesar E. Chavez High School
Young Women's Leadership Academy

CALIFORNIA

Western Center Academy

2345 Searl Parkway
Hemet, CA 92543
951.766.9030

Head of school: Paul Bailey Executive Director 951-766-9030 pbailey@hemetusd.org

Contact: Michael Horton Assistant Principal mhorton@hemetusd.org

www.westerncenteracademy.com

Total students enrolled: 681

School structure: 6-12th grades



Western Center Academy actively engages 6th through 12th grade students in learning science, technology, engineering and mathematics to prepare them for careers in a highly technical economy. The central instructional goal, developed alongside our host museum, the Western Science Center, is to integrate a "museum discovery" based approach with the formal educational methods commonly practiced in schools. Museum discovery based learning, which is unique, experiential, active, participatory and uses real specimens to engage students in authentic science experiences guides our instruction and our hands-on STEM electives further support the mission.

GEORGIA

North Gwinnett High School

20 Level Creek Road
Suwanee, GA

ILLINOIS

**York Community High School
Elmhurst Community Unit School District**

162 S. York St.
Elmhurst IL 61026

Head of school: **Erin DeLuga** Principal

Contact: **David Beedy** STEM Coordinator dbeedy@elmhurst205.org 630.782.6597

<http://york.elmhurst205.org>



York H.S. offers 26 different AP courses and 16 dual credit courses. They encourage all students to take at least one AP/ACP/Dual Credit course prior to graduation. York offers a multi-year sequence in research and digital literacy including AP Seminar and ending with AP Research to complete the AP Capstone sequence. The high school also offers multiple STEM course sequences through their Tech and Applied Arts Dept. including Fashion and Apparel, Interior Design, Culinary Arts, Industrial Technology, Transportation, Construction, Architecture, Communications, STEM, Manufacturing, Computer Science and Programming, Computer Information Systems, and Graphic Arts.

MARYLAND

Anne Arundel County Public Schools- Central Middle School

221 Central Avenue
Edgewater, MD

Anne Arundel County Public Schools- Lindale Middle School

415 Andover Road
Linthicum, MD

Anne Arundel County Public Schools- Old Mill Middle South

620 Patriot Lane
Millersville, MD

MASSACHUSETTS

Holy Name Central Catholic Junior/Senior High School

144 Granite Street
Worcester, MA 01604
508.753.6371



HOLY NAME
JUNIOR/SENIOR HIGH SCHOOL
Loved at home. Loved at school. Loved by God.

Head of school: **Mr. Edward Reynolds** Headmaster Ed.Reynolds@holyname.net
Dr. Bernard Audette Principal Bernard.Audette@holyname.net
Primary Contact: **Mrs. Anne Kennedy, Esq.** Assistant Principal Anne.Kennedy@holyname.net

www.holyname.net

Holy Name is a Central Catholic junior/senior high school operated by the Diocese of Worcester, Massachusetts. The school serves roughly 600 students in grades 7-12. Students are from the city itself, from 42 surrounding communities, and roughly 13% of our student body are international students. Programs Offered: Our school was founded by the Sisters of St. Anne with a goal of providing an excellent Catholic education to all who desired such a program. At Holy Name we have continued that tradition by providing a transformative, holistic educational experience to a diverse student body made up of individuals seeking to make a difference in our world. Holy Name is a rigorous college preparatory school as 100% of our graduates will go on to study at the college or university level.

Our mission is to educate dedicated students in a community of love and respect to fulfill their academic potential, to accept personal responsibility, and to use their unique gifts to bring Christ into the world. With an emphasis on authentic learning experiences, we expect our students will gain the knowledge and skills necessary to solve real-world problems. We know our graduates will ultimately improve the lives of their brothers and sisters from around the globe, thereby changing the world for the better through their work. To this end, we offer advanced and accelerated study in all core academic areas as well as having an award winning and well recognized arts program that includes visual arts, vocal music, instrumental music, dramatic theater, musical theater, and dance. Our educational programs are complemented by co-curricular activities including: athletics, the arts, social justice groups, ministry outreach groups, competitive teams such as mock trial, math team, and robotics groups. Over 85% of our student body extends their learning and growth through participation in the activities that take place beyond the school day.

Unique Offerings:

Holy Name High School and Worcester Polytechnic Institute (WPI) work together to research best practices in STEM (Science, Technology, Engineering, and Mathematics) curriculum at the high school level. The program, called the Holy Name – WPI Collaboration for Application Oriented Research, provides the opportunity for Holy Name students to engage in research programs alongside WPI students working on their Interactive Qualifying Projects (IQPs). Holy Name is also unique in that the school owns and operates its own wind turbine which has generated over 5.3 million kWhs and saved the school close to \$1 million dollars in energy purchases in the eight years the turbine has been in operation. With this successful turbine, in 2017 we were able to partner with Worcester Polytechnic Institute, Vionx Energy, and National Grid on a research project evaluating the operational effectiveness of eight power storage units connected to our wind turbine and the smart grid. Although this project is in its infancy, all students at Holy Name will have their academic experience impacted by this state-of-the-art research project. In addition to our full complement of computer, applied technology, and engineering focused classes, we have recently worked with WPI to design and install a maker space for our students. The maker space, which is available to students during and beyond the school day to enhance their authentic learning, exploration, and experimentation contains: Four 3-D printers (Formlabs Form2 - a resin based SLA printer, Polar3d, Makerbot-Replicator+ , FlashForge-Inventor II - All PLA/ABS filament style), 10 Arduino Kits for Basic Electronics study, 3 All-in-One HP Computers for Design work (CAD- PTC/Creo and other CAD tools), 7 Lego Robotics Kits (NXT) and 5 Lego Robotics Kits (EV3) with accompanying software (Robot-C and Lego Block based code), 5 Note Book P.C.s for driving Robotics and Electronic work, an upgrade in Robotic Wheels and a VEX Robotics Kit. All the tools and experiences will afford students a complete STEM experience from creative design, implementation, assembly and presentation.

Finally, through the work completed by our students working along with WPI students we have completely redesigned our life sciences laboratory space to include the current standard for undergraduate labs for equipment and function. Fundraising for this effort is well under way and the lab is scheduled to open in the fall of 2018.

Northbridge High School

427 Linwood Avenue
Whitinsville, MA 01588
508.234.6221

Head of school: William Bishop

www.nps.org



Unique Offerings:

Northbridge High School partners up with WSU and NASA to offer a wide variety of science opportunities for our students. Northbridge also allows students to choose a specific field of interest and enroll in career academies. In science there are the Pre-Med Academy, Engineering Academy, and Pre-Vet Academy. Science Courses Offered: Biology, Chemistry, Physics, Engineering the Future, Anatomy and Physiology, Microbiology, Pathophysiology, Biotechnology, AP Biology, AP Physics, AP Chemistry, NASA-ICED, CAD, Architecture, Botany, Zoology, and Wildlife Biology.

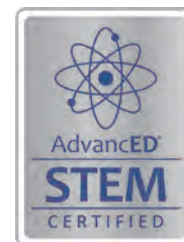
SOUTH CAROLINA

West Florence High School

221 N. Beltline Dr.
Florence, SC 29571
843.758.6546

Contact: Randy Jackson Assistant Principal orandal.jackson@fsd1.org

www.fsd1.org/westflorence



Total enrollment: 1,800

School structure: Comprehensive full-day

AP Courses: English Literature, Calculus AB and BC, U.S. History, Biology, Human Geography, Statistics, European History, and AP Chemistry.

Dual enrollment: Yes, with Florence Darlington Technical College and Francis Marion University.

West Florence High School was built in 1970 to serve the Florence community. We strive to meet the learning needs of students in the classroom and beyond classroom walls. Our goal is to ensure students are prepared for their futures, are encouraged to become lifelong learners, and are introduced to cultural diversity.

TEXAS

Cesar E. Chavez High School

8501 Howard Drive
Houston, TX

Young Women's Leadership Academy

401 E. 8th Street
Fort Worth, TX

AFFILIATE MEMBERS

CALIFORNIA

California Institute of Technology
Harvey Mudd College

COLORADO

Colorado School of Mines

FLORIDA

Florida Institute of Technology
New College of Florida
University of Miami

GEORGIA

Savannah College of Art and Design

ILLINOIS

Center for Talent Development at Northwestern University
Illinois Institute of Technology

KANSAS

Kansas State University

KENTUCKY

Center For Gifted Studies- Western Kentucky University

MASSACHUSETTS

Massachusetts Institute of Technology
Olin College of Engineering
Smith College
Wentworth Institute of Technology

MINNESOTA

Carleton College

MISSOURI

Saint Louis University
St. Louis College of Pharmacy

NEW MEXICO

Radcademy®

NEW YORK

Columbia University
Rensselaer Polytechnic Institute
University of Rochester
Utica College

NORTH CAROLINA

North Carolina State University

OHIO

Case Western Reserve University

VIRGINIA

Randolph College

UNITED KINGDOM

St. John's College

CALIFORNIA

California Institute of Technology

383 South Hill Ave, M/C 10-90
Pasadena, CA 91125

Contact: **Scott Jung** Admissions scott@admissions.caltech.edu

www.caltech.edu



Harvey Mudd College

301 Platt Blvd
Claremont CA 91711

Head of School: **Maria Klawe** President

Contact: **Peter Osgood** Director of Admission POsgood@hmc.edu 909.621.8011

www.hmc.edu

Total students enrolled: 850

School structure: Undergraduate only, 4-year degree (B.S.)



Harvey Mudd College seeks to educate engineers, scientists, and mathematicians, well versed in all of these areas and in the humanities and the social sciences so that they may assume leadership in their fields with a clear understanding of the impact of their work on society. HMC is a private, coeducational, non-sectarian, undergraduate only liberal arts college and a member of the Claremont Colleges Consortium.

Our students love math and science, want to live and learn deeply in an intimate climate of cooperation and trust (hooray, honor code). Mudders thrive on innovation and discovery, enjoy vigorous coursework and mentorship from our devoted faculty. At least a year of original, thesis driven research or participation in our Gordon Prize winning Clinic program is required (or guaranteed, if you prefer).

While we may not take ourselves too seriously, employers and graduate schools do. We enjoy a powerful reputation for preparing our graduates for various career paths and are nationally touted for our high return of investment. HMC also sends the highest proportion of graduates to PhD programs in the STEM fields of any undergraduate college in the country (second amongst all colleges and universities).

COLORADO

Colorado School of Mines

1600 Maple Street
Golden, CO 80401

Contact: **Heather Boyd** Director of Enrollment Management hboyd@mines.edu

Secondary Contact: **Megan Missel** mmissel@keystonescienceschool.org

www.mines.edu



FLORIDA

Florida Institute of Technology

150 West University Blvd.
Melbourne FL 32901
321.674.8030



Contact: Michael Perry Director of Admission perrymj@fit.edu

www.fit.edu

Founded as "Brevard Engineering College" in 1958, Florida Institute of Technology today is a comprehensive, research-intensive national university offering undergraduate, master's and doctoral degrees that prepare students for careers of the future. As Florida's STEM University™, Florida Tech's approach to academics is research-driven, high-tech and hands-on, allowing our students to both gain knowledge and get real experience in applying it. Here, you don't just learn—you do.

New College of Florida

5800 Bay Shore Road
Sarasota, FL 34243-2109



Contact: Mitch Finer Director of Enrollment mfiner@ncf.edu

Secondary Contact: Sharon Alcock Associate Director salcock@ncf.edu

www.ncf.edu

University of Miami

Stanford Dr.
Coral Gables, FL 33124

Primary Contact: William Scott Green
Dean of Undergraduate Education
wgreen@miami.edu 305-284-2003

Website address: coe.miami.edu



The University of Miami (UM) - College of Engineering (CoE) is located on the UM Coral Gables, Fl. campus, a 230-acre suburban tract, just minutes from downtown Miami. The College is housed in the McArthur Engineering building, a 120,000-square-foot complex with state-of-the-art laboratories and facilities, which is comprised of five departments that offer BS, MS and PhD programs in Biomedical Engineering; Civil, Architectural and Environmental Engineering; Electrical and Computer Engineering; Mechanical and Aerospace Engineering; and Industrial Engineering. Accredited by the Southern Association of Colleges and Schools (SACS), UM has 12 academic units. Founded in 1947, the College of Engineering is recognized for the quality and diversity of its faculty, students and curricula and noted for educating tomorrow's technology leaders for career success.

GEORGIA

Savannah College of Art and Design

P.O. Box 2072
Savannah, GA 31402

Contact: Sarah Fedak sfedak@scad.edu

www.scad.edu and **www.scad.edu/admission**



SCAD offers more than 100 academic degree programs in more than 40 majors across its locations in Atlanta and Savannah, Georgia; in Hong Kong; in Lacoste, France; and online via SCAD eLearning. With a culture of collaboration, a multidisciplinary approach to education and acclaimed faculty, SCAD prepares students to become trailblazers in the fields of animation, industrial design, interactive design and game development, visual effects and more.

The innovative SCAD curriculum is enhanced by cutting-edge technology and learning resources. Visionary SCAD students have blended art, math and science to create award-winning video games and conservation-minded applications and vehicles, as well as to devise design solutions for BMW, Coca-Cola, Google, NASA and others.

Career preparation is woven into every fiber of the university: According to a recent study, 98 percent of Spring 2015 SCAD graduates were employed, pursuing further education or both within 10 months of graduation.

ILLINOIS

Center for Talent Development at Northwestern University

617 Dartmouth
Evanston, IL 60208
847.491.3782

Contact: Paula Olszewski-Kubilius Director
p-olszewski-kubilius@northwestern.edu

Secondary Contact: Elliott Cady
elliott.cady@northwestern.edu

www.ctd.northwestern.edu



Center for Talent Development (CTD) at Northwestern University is dedicated to helping students, age 4 through grade 12, reach full potential. CTD's research-based assessment, academic programs, and myriad resources supplement school learning. Our approach to talent development delivers personalized options and guidance for young people with high ability, setting students on a journey of intellectual, emotional, and social growth. Our accelerated and enrichment programs expand access to advanced courses, allow students to explore subjects of intrigue and connect them with a community of peers. CTD is accredited by the North Central Association Commission on Accreditation and School Improvement (NCA CASI).

Illinois Institute of Technology

10 West 35th Street
Chicago, IL 60616
312.567.5239

Contact: Toni Reilly Director Undergrad Admissions triley6@iit.edu

web.iit.edu



AFFILIATE MEMBERS

Illinois Institute of Technology is a private, technology-focused research university offering undergraduate and graduate degrees in engineering, science, architecture, business, design, human sciences, applied technology, and law.

One of 21 institutions that comprise the Association of Independent Technological Universities (AITU), Illinois Tech offers exceptional preparation for professions that require technological sophistication, an innovative mindset, and an entrepreneurial spirit.

The Wanger Institute for Sustainable Energy Research (WISER) is home to the nation's first functional microgrid. WISER works with students and faculty across disciplines to improve the quality of life in our nation while preserving the natural resources and the environment for future generations. State-of-the-art rapid prototyping lab, The Idea Shop, is where students transform ideas into reality with 3-D printers, 3-D scanners, CNC milling machines, a vacuum former, and a laser cutter.

It's one-part entrepreneurial center and one-part gathering place, with full-time staff dedicated to testing the limits of student imagination.

KANSAS

Kansas State University

1114 Mid-Campus Drive North
Manhattan, KS 66506

Head of School: Roger Schierecke Asst. Dean, College of Education

coe.ksu.edu

School structure: Affiliate College

KENTUCKY

Center For Gifted Studies- Western Kentucky University

1906 College Heights BLVD. #71031
Bowling Green, KY 42101

Contact: Julia Roberts julia.roberts@wku.edu

Secondary Contact: Tracy Inman tracy.inman@wku.edu

www.wku.edu



MASSACHUSETTS

Massachusetts Institute of Technology

77 Massachusetts Ave. Building 3-108
Cambridge, MA 02139-4307

Contact: Stuart Schmill Dean of Admissions stucrew@mit.edu

Secondary Contact: Matt McGann madmatt@mit.edu

www.mit.edu



Olin College of Engineering

1000 Olin Way
Needham, MA 02492
781.292.2222



Olin College
of Engineering

Contact: **Emily Roper-Doten** Dean of Admission and Financial Aid Emily.Roper-Doten@olin.edu

Secondary Contact: **Emily Roper-Doten** Susan Brisson susan.brisson@olin.edu

www.olin.edu

Leading the Revolution in Engineering Education

Smith College

7 College Lane
Northampton, MA 1063



Contact: **Debra Shaver** Dean of Admission dshaver@smith.edu

Secondary Contact: **Kathryn Messier** kmessier@smith.edu

www.smith.edu

Wentworth Institute of Technology

Department of Applied Mathematics
550 Huntington Ave
Boston, MA 2115

Contact: **Amanda Hattaway** Department Chair & Associate Professor
hattawaya@wit.edu 617.989.4368

www.wit.edu



MINNESOTA

Carleton College

100 South College Street
Northfield, MN 55057

Contact: **Paul Thiboutot** VP and Dean of Admissions and Financial Aid
pthibout@carleton.edu

Secondary Contact: **Adam Webster** aswebster@carleton.edu

www.carleton.edu



MISSOURI

Saint Louis University

1 North Grand Blvd
St Louis, MO 63103

Contact: **William Perkins** Division of Enrollment and Retention wperkins@slu.edu

www.slu.edu



St. Louis College of Pharmacy

4588 Parkview Place
St. Louis, MO 63110
314.446.8328

Contact: **Beth Keserauskis** Vice President of Enrollment Services and Marketing
Beth.Keserauskis@stlcop.edu

Secondary Contact: **Chase Davis** Director of Admissions Chase.Davis@stlcop.edu

stlcop.edu



For more than 150 years, St. Louis College of Pharmacy has been preparing students for expert practice and leadership in pharmacy and health professions careers. With a total enrollment of nearly 1,400, the College offers a tight-knit campus community where students live and learn in a support environment.

Our location in the Washington University Medical Center, one of the nation's preeminent biomedical complexes, provides unparalleled learning opportunities through research, internships and other hands-on learning experiences.

The College offers both undergraduate and professional degrees. Undergraduate degrees from the College prepare students for health professions careers, and they can serve as the perfect foundation for graduate or professional study. Our four-year Doctor of Pharmacy program prepares students to be leaders in innovators in the profession of pharmacy. Our graduates work in practice settings ranging from community pharmacies to biomedical research facilities.

NEW MEXICO

Radcademy®

American Society of Radiologic Technologists
15000 Central Ave. SE
Albuquerque, NM 87123-3909
800.444.2778

Contact: **Greg Crutcher**
ASRT Public Relations Coordinator
radcademy@asrt.org

www.asrt.org/radcademy



An initiative of the American Society of Radiologic Technologists, Radcademy® is for kids and STEM educators discovering the fascinating fields of medical imaging and radiation therapy—including x-rays, computed tomography, magnetic resonance imaging and more.

The “coolness factor” of x-ray technology is engaging a new generation of students who want to learn about its important science, technology, engineering and math principles.

Radcademy™ is a resource for students and educators that includes:

- Website and videos.
- Unique “RADfacts” that highlight medical imaging and radiation therapy statistics.
- Mini curriculum and educational resources for middle and high school teachers, including:
- Lesson plan, worksheet, discussion guide and quiz.
- <https://www.asrt.org/radcademy/educators/>

Through our video series, teachers and kids learn about the radiologic procedures used to see inside the human body, meet the personnel who perform the procedures and discover how x-rays can diagnose and treat injuries and diseases.

About ASRT

The ASRT represents more than 153,000 members who perform medical imaging procedures or plan and deliver radiation therapy. The Society is the largest radiologic science association in the world. Its mission is to advance the medical imaging and radiation therapy profession and to enhance the quality of patient care.

NEW YORK

Columbia University

212 Hamilton Hall MC 2807
1130 Amsterdam Ave
New York, NY 10027



Contact: Dana Pavarini

Director of Engineering Recruitment dwp2102@columbia.edu

Secondary Contact: Whitney Green

Director of Science Recruitment wrg2103@columbia.edu

www.columbia.edu

With landmark contributions ranging from the FM radio and the foundation of modern genetics to contemporary research such as self-aware robotics and lab-grown replacement organs, Columbia University in the City of New York has been an engine of innovation and a pioneer in technology since its founding in 1754.

Columbia offers a renowned education within the world’s most global city – a place for out-of-the-box thinkers and socially-responsible problem solvers to make an impact on a grand scale. Our 36-acre campus in Manhattan’s Upper West Side provides a traditional residential college experience to one of the most diverse, talented student bodies in the world. And a subway stop right outside the campus gates provides easy access to every corner of New York City.

Between our two undergraduate schools – Columbia College, a liberal arts college, and The Fu Foundation School of Engineering and Applied Science, more simply known as Columbia Engineering – about half of our 6,000 undergraduates major in science or engineering fields while also participating in Columbia’s famed interdisciplinary Core Curriculum. Undergraduates can conduct research at 200 affiliated institutes and centers and pursue internships with thousands of organizations around New York City and the world.

For more information about Columbia, including our generous need-based financial aid program, please visit <http://undergrad.admissions.columbia.edu>.

Rensselaer Polytechnic Institute

Admissions Bldg.
Troy, NY 12180-3590

Contact: Karen S. Long Director, Undergraduate Admissions longks@rpi.edu

Secondary Contact: Jeanne Waugh waughj@rpi.edu

www.rpi.edu



University of Rochester

Box 270251
Rochester, NY 14627-0251

Contact: Catherine Lewis

Associate Director, School and Community Relations
catherine.lewis@rochester.edu 585.275.8600

www.rochester.edu

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instagram.com/urprecollege

youtube.com/user/uradmissions



The University of Rochester is one of the country's leading private research universities. It consistently ranks among the top in federally financed science, engineering, medical, and other research. Along with this rigor, Rochester operates on a personal scale, creating exceptional opportunities for undergraduate research, close work with faculty, and interdisciplinary study. The unique Rochester Curriculum invites students to study what they love, allowing for both focus and flexibility. The University's mission is to Learn, Discover, Heal, Create—and Make the World Ever Better. Through individual endeavors and collaborative efforts, our students and faculty work toward this goal each day, improving themselves, each other, and our shared learning environment in the process.

Utica College

1600 Burrstone Rd
Utica, NY 13502
315.792.3010

Contact: John Rowe Executive Director of Graduate Admissions jrowe@utica.edu

www.utica.edu



Located in the heart of Central New York, Utica College is a comprehensive, independent, private institution founded in 1946. We offer many of the advantages of a large university, such as:

- undergraduate and graduate degree options,
- excellent academic programs,
- outstanding faculty

...but with an intimacy and a high degree of personal attention more closely associated with smaller private colleges.

The College offers 38 undergraduate majors and 31 minors.

The College offers 21 graduate programs, including master's degrees, doctoral programs, and graduate-level certificates. Options include:

- business administration
- cybersecurity - intelligence and forensics
- financial crime and compliance management
- education
- health care administration
- occupational therapy
- physical therapy

NORTH CAROLINA

North Carolina State University

203 Peele Hall, Box 7103
Raleigh, NC 27695-7103

Contact: Joyce Mai Director of Recruitment joyce_mai@ncsu.edu

Secondary Contact: Ronnie Chalmers Associate Director of Undergraduate Admissions
ronnie_chalmers@ncsu.edu

www.ncsu.edu



OHIO

Case Western Reserve University

11318 Bellflower Road
Cleveland, OH 44106-7055

Contact: Robert R. McCullough Director of Undergraduate Admissions
robert.mccullough@case.edu

Secondary Contact: Rae Ann DiBaggio rmb@case.edu

www.case.edu



Case Western Reserve University is a mid-sized, private research university set in campus location that is brimming with opportunity and ripe for innovation. Our 5,200 undergraduate students enter CWRU through a single door, enabling them to access coursework across our four undergraduate colleges of Arts and Sciences, Engineering, Management, and Nursing.

CWRU students engage in undergraduate experiences such as research with faculty, internships, co-operative education, clinical work, and study abroad at a very high rate. Such experiences are built into the programs, structures, and culture of the University, resulting in an outstanding record of student success.

With facilities such as think[box], a 50,000 square foot ecosystem for innovation, CWRU students apply their STEM acumen in collaboration with professors, fellow students, and the broader Cleveland community.

Case Western Reserve shares a campus with pre-eminent cultural institutions, including the Cleveland Museum of Art, Severance Hall, home to the Cleveland Orchestra, and the Cleveland Museum of Natural History. Also adjacent to our campus are three major hospital systems, including the Cleveland Clinic, consistently rated the number 2 hospital in the US. The quality and proximity of these neighboring institutions provides outstanding opportunities to elevate the CWRU student experience.

VIRGINIA

Randolph College

2500 Rivermont Ave
Lynchburg, VA 24503

Contact: Darlene Martin dmartin@randolphcollege.edu

www.randolphcollege.edu



Randolph College is committed to excellence in the liberal arts and sciences. The College's academic program helps students build a solid foundation for their lives through broad exposure to the ideas and methods of many fields of study, as well as the depth of focus in their chosen majors. The liberal arts foster the critical thinking and creativity necessary to address the problems faced by individuals, industries and nations in the modern world.

Two grants totaling \$1,600,000 from the National Science Foundation (NSF) scholarships in Science, Technology, Engineering, and Mathematics (S-STEM) program allow Randolph College to make college more accessible for physical science and math majors.

The scholarship program, "**Step-Up to Physical Science and Engineering at Randolph College (SUPER)**," builds on Randolph's SUPER College Transition Program, a two-week, intensive, three-credit course that begins before first-years arrive on campus. The Summer Transition Program cost of \$2750 includes 3 credits, room, board, field trip costs, and supplies, and all students accepted into the program will receive scholarships to cover this cost. The 2017 Summer Program (required of all SUPER participants) will run from August 9 to August 22. Some participants in the SUPER program will receive *additional* academic scholarships.

In addition to the Summer Program, all SUPER scholars will participate in **specially tailored mentoring, academic support** services, **career guidance** activities, and annual tailored seminar courses. SUPER scholars must participate in all aspects of the SUPER program and must major in science or mathematics. For more information, please contact Professor Peter Sheldon at 434-947-8488.

UNITED KINGDOM

St. John's College

Cambridge | CB2 1TP

www.joh.cam.ac.uk

Contact: Katerina Marmara Scholarship Administrator Senior Tutor's Office
K.Marmara@joh.cam.ac.uk +44 (0)1223 338789

Facebook: www.facebook.com/stjohnscambridge

Twitter: @stjohnscam



ST JOHN'S COLLEGE
UNIVERSITY OF CAMBRIDGE

The University of Cambridge, founded in 1209, has a world-wide reputation for outstanding academic achievement and is consistently ranked as one of the world's best universities. It is formed from a variety of institutions, which include 31 Colleges and more than 100 academic departments. The Colleges are governed by their own regulations, but are integral to the make-up of the University of Cambridge. All students are members of a College; this is the place where they eat, live, socialise and receive their supervisions.

St John's College, which was founded in 1511, is one of the biggest Colleges in Cambridge and one of the most stunning places in the world for students to live and learn!

The College's commitment is to offer a complete learning experience to its students and to enable them to make the most of their course, so as to fulfil their potential and exceed their own expectations.

How is this achieved? Through endless and substantial personal attention and support!

- The supervision system, which is implemented at St John's, allows all undergraduate students to devise a programme of study that suits their interests and needs, and arrange regular, small-group tuition sessions.
- A wealth of people offer practical support and advice to students.
- Plenty of financial initiatives are in place at St John's, so as to ensure that students will be able to access the opportunities offered at the College, without financial worries and constraints.

Facts about St John's:

- The student body comprises 980 students in total, both undergraduates and graduates.
 - 15-20% of St John's students come from overseas.
 - Approximately 60% of undergraduate students study towards a 'Sciences' degree.
 - Among the strongest subjects at St John's are Natural Sciences, Maths and Engineering. The average annual intake of students for these subjects is: 30 for Natural Sciences, 15 for Maths and 15 for Engineering.
 - St John's has one of the largest College libraries in Cambridge, housing more than 105 thousands borrowable books.
 - There are more than 40 clubs and societies, all run by students.
 - Cambridge graduates are among the most employable in the world; 6 months after graduation, 54.9% of Cambridge graduates are in employment.
 - The College's alumni include the winners of 10 Nobel Prizes and 7 Prime Ministers!
-
-

INTERNATIONAL MEMBERS

Al Nayzak for Supportive Education and Scientific Innovation

Itha'a St. Altour Jerusalem

www.alnayzak.org

Primary Contact: **Sarah Kuhail** Administrative Director
kuhails@alnayzak.org +972 59 7920997

Secondary Contact: **Aref Hussein** Chairman
husseinia@alnayzak.org +972 54 7535415



Al Nayzak is Palestinian non-profit, non-partisan, Jerusalemite and unique initiative that looks for young talents in science, technology, engineering, and math(STEM), and plants an ambitious vision in the hearts of our community: "To develop, root, and reinforce a new culture that embraces science, and to announce this culture among Palestinian youth so that their competence in productive applied sciences could provide them with better economic opportunities that would lead to their future prosperity."

Al Nayzak's approach is to make scientific-thinking skills become an inherent part of the lives of Palestinian people. In order to do this, it applies empirical tools to help individuals acquire thinking skills and relate them to genuine savoir-faire and technology. In this way they become capable of facing challenges in their journey to achieve excellence and helping develop their environment and build a modern Palestinian society.

In order to achieve its mission, the organization has adopted a series of chronically conducted programs that target various age groups to incubate talented people from an early age, including Talented Students Incubators for kids and adolescents from 10 to 14; Young Researchers for those from 14 to 17; Scientific and Technological Entrepreneurship (STEP) for school students from 14 to 17; Made in Palestine (MIP) for those who are 18 and above; and "Tafkeer", Thinking-Technology program which integrates technology in education in schools. There are also a number of complementary projects to convey a message of science and knowledge to all segments of the society.

Crowning its series of achievements and a 10 years parade for innovation, the organization inaugurated in 2013 the first Science and Technology House in Palestine, where visitors enjoy hands on activities all dedicated to create a culture of scientific thinking and as a nuclear to establishing the National Science and Technology Museum in Palestine. The Science House receives around 15 thousand visitors annually.

Al Nayzak serves all Palestinian areas through its network of offices in Jerusalem, Ramallah, Gaza, and Nablus, as well as in the Science and Technology House in the Old City of Birzeit.

Kamnoetvidya Science Academy

999 Moo 1
Payupnai, Wang Chan Valley
+66 3301 3620

www.kvis.ac.th

Primary Contact: **Dr. Rachain Kosanlavit** rachain.k@kvis.ac.th +66 3301 3710

Secondary Contact: **Pattaraporn (Pat) Pathomyothin** pattaraporn.p@kvis.ac.th

Head of School: **Dr. Rachain Kosanlavit** rachain.k@kvis.ac.th +66 3301 3710

Total students enrolled: 216

Kamnoetvidya Science Academy (KVIS) was founded in 2013 with the vision of being a leading science high school promoting wisdom, research, and technology for the nation's sustainable development. The name Kamnoetvidya, which means "the genesis of knowledge," was bestowed on the school by Her Royal Highness Princess Maha Chakri Sirindhorn.

KVIS is financially supported by the Power of Learning Foundation with an endowment fund provided by the PTT Group of Companies to ensure the sustainability, prosperity, and longevity of the academy. The school is situated in the PTT Group Research and Education Park called the Wang Chan Valley. VISTEC, a research university, and the Wang Chan Forest Learning Center are also located in this park.

KVIS is a boarding school and offers specialized curricula that emphasize mathematics, science, and technology to students from years 10 to 12. Only 72 high-ability students are admitted each year for a total student body of 216 students. All these students are on full three-year scholarships. One of the outstanding features of the school is its small-sized classrooms of 18 students. Small classes enable teachers to cater to each individual's learning style and thus provide customized education to the students.

PROGRAMS OFFERED

High School Certificate Program in Science and Mathematics. Students are required to enroll in all courses structured by the Thai Ministry of Education. However, because Kamnoetvidya Science Academy receives students from rigorous methods of selecting students with high abilities in science and mathematics from all over the country, the school offers both fundamental and advanced courses in Mathematics, Physics, Chemistry, and Biology. Students are allowed to take advanced courses in only two disciplines during the three-year study. For example students can choose to take advanced courses in Mathematics and Physics, or Chemistry and Biology, or Mathematics and Biology etc. Even though courses like Computer Science, Earth Science, Environmental Science, and Astronomy are not major courses, students are required to take these courses as well. Even though KVIS uses English as the medium of instruction, students are still required to take courses in English Language, Social Studies, Thai Language, History, and Physical Education.

Unique Offerings: Each student is required to carry out a research project, submit a mini-thesis, and present the research work at a scientific conference before graduation. The research project can be done either singly or within a group having a maximum number of three students per research project. Apart from a tabletop Scanning Electron Microscope, UV-Visible Spectrophotometer, Fluorescence Spectrophotometer, FTIR Spectrometer, Cyclic Voltammetry, Nanoparticle Generator, Nanodrop Spectrophotometer, DNA Engine etc., KVIS students also have accesses to advanced scientific instruments at a research institution nearby, named Vidyasirimedhi Institute of Science and Technology (VISTEC). The instruments students often use are, for example, X-Ray Diffractometer, NMR, Atomic Force Microscope, and the Atomic Resolution TEM.

KVIS students are required to complete a set number of hours for community service, and physical exercises during the three-year period of study.

National School of Physics and Math (FizMat)

Almaty Campus:

36 Bukhar Zhyrau Boulevard
Almaty, Kazakhstan, 050040

Astana Campus:

2/1 Turkistan Street
Astana, Kazakhstan, 010000

www.fizmat.kz



Primary Contact: Yerlan Uteulin Deputy CEO yerlan@fizmat.kz +77016627217

Total students enrolled: 2,100

School structure: Comprehensive Full Day (STEM and non-STEM courses)

PROGRAMS OFFERED

Unique Offerings: Edutainment Research Lab, Robotics, Mobile Applications Development Lab, Comparative Linguistics Center, Chess Team, Critical Thinking Society, Federation of School Go, Math Team, Physics Club, Business Hub.

AP Courses: AP Physics C: Mechanics, AP Physics: Electricity and Magnetism, AP Calculus BC, AP Computer Science A, AP English Language and Composition.

Math Courses/Electives: Logic, Algebra, Trigonometry, Geometry, Pre-Calculus, Linear Algebra, Differential Equations, Math Olympics, Math Research, Combinatorics and Probability.

Science Courses/Electives: Biology (I, II, III, IV), General Chemistry, Intro to Organic Chemistry, Physics, Astronomy, Physics Olympics, Chemistry Olympics, Biology Olympics.

Technology Courses/Electives: Architectural Drafting, Computer Technology, Robotics & Automation.

Research Courses/Electives: Critical Thinking, Junior Research, Senior Research.

Computer Science Courses/Electives: Scratch, Python, C++.

Dual Enrollment: No

Participation in National Academic Competitions: Global Math Challenge, Kazakh Math Olympiad, IMO, IPhO, IChO, IBO, IOI, Zhautykov Science Olympiad (host), IJSO, International Philosophy Olympiad, Intel ISEF, Robotics Competitions, Kolmogorov Math Contest, International Tuymaada Olympiad.

Scholarship Awards: 70% of total student body receive full scholarships

Philippine Science High School Main Campus

Agham Road
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Mission

The Philippine Science High School, operating under a unified structure of executive committees, provides scholarships to secondary students with high aptitude in science and mathematics.

The PSHS offers an education that is humanistic in spirit, global in perspective, and patriotic in orientation. It is based on a curriculum that emphasizes science and mathematics as well as the development of well-rounded individuals.

The PSHS prepares its students for careers in Science and Technology and contributes to nation building by helping the country attain a critical mass of professionals and leaders in different fields.

Vision

We are a leading science high school in the Asia Pacific Region preparing our scholars to become globally competitive Filipino scientists equipped with 21st century skills and imbued with the core values of truth, excellence, and service to nation.

Qatar Foundation STEM School

Qatar Foundation
PO Box 5825
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