Courses & Days

Monday
3D Modeling
Honors Algebra
Cool Chemistry
Critical Thinking
Intermediate Java
Our Solar System
Pre-Algebra
Writing for Literature

Tuesday
CAD & Lego Designs
Mega History
Model UN
Non-Routine Problem Solving

Wednesday
Introduction to Java Programming
Math Counts
Read Like a Detective

Thursday
Crazy Biology
Do You Love to Debate?
Honors Geometry
Robotics

Saturday
Acting & Improv
Create Your Own Business
Creative Writing
Mock Trial
Super Smart Machines

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ACADEMY
After
HOURS
...thinking for the future...

Fall Session, 2017
October 9th to December 19th

Russell Davis
Principal
### 3D Modeling
**Mondays (Grades 5-8)**

This course uses techniques in modeling, material generation, and key framing with 3D Studio Max. Components of the course include modeling (deformations), material generation, key framing (morphing), and rendering with video output for playback on a computer. 3D Studio Max (sometimes called 3DS Max or just MAX) is a 3D computer graphics and animation software program.

### Acting and Improv 101
**Saturdays (Grades 5-8)**

In acting 101 the focus will be creating strong characters and committing to those choices. We will play improv/theatre games, read and act out excerpts from plays, and use our real life to tap into our inner superstars!

### CAD & Lego Designs
**Tuesdays (Grades 5-8)**

Students will use solid modeling, an efficient method, as an introduction to the design process. Students learn basic sketching skills to develop designs, drafting techniques, and use Autodesk Inventor Professional software to design and model a Lego piece. Students will also utilize sophisticated software features and descriptive geometry to increase design efficiency that will optimize design editing. Students will create their own Lego design and will learn about 3D printing technologies.

### Cool Chemistry
**Mondays (Grades 5-8)**

This laboratory hands-on course will excite students when they learn how and why various chemical phenomena work. They will perform mini experiments to see why fireworks display so many colors, investigate what colors make up ordinary ink, experience the power of atmospheric pressure, learn what makes light sticks work, watch how you can boil water at room temperature or in a paper cup, and many others! Each session will begin with a brief lesson describing the scientific principles that will be witnessed that day before conducting the fascinating experiments. This chemistry class will be sure to create a reaction! Materials Fee: $10.00

### Crazy Biology
**Thursdays (Grades 5-8)**

In this course we will take a look at the wild world of biology, looking at the basics of this life science as it pertains to the world of the most bizarre and interesting organisms on the planet! Materials Fee: $10.00

### Create Your Own Business
**Saturdays (Grades 6-8)**

Students will work collaboratively in cooperative groups to create their own businesses. Students will acquire understanding of the cost, licensing and advertising aspects of entrepreneurship. Students will design a product or create the service for their business. Students will tackle issues pertaining to name, location and type of business. They will also identify the best method to sell their products and services. Participants will enhance writing, analytical, speaking, public presentation, marketing, interviewing, Microsoft Office Suite and general business skill sets.

### Creative Writing
**Saturdays (Grades 5-8)**

This introductory writing workshop focuses on the reading, discussion and revision of students’ short fiction and poetry. Students will be introduced to models of fiction and poetry and will use these models to develop their own creative pieces. Students will enhance their storytelling skills and learn how to capture a reader’s attention while finding their own, unique voice. Topics covered will include character, setting, point of view, imagery, and poetic forms. Students will collaborate to compile an anthology of student writing composed during the course. No prior creative writing experience is necessary.

### Critical Thinking: Reading, Writing, and Games
**Mondays (Grades 5-7)**

Critical thinking is important for everyone. We all use thinking processes constantly and we should be able to consider problems, reason and debate in a logical way. Students will practice reading and writing techniques to help them to problem solve and think more critically, plus learn ways to do so while playing games.

### Do You Love to Debate?
**Thursdays (Grades 6-8)**

This course develops the debate skill sets which include public speaking, note taking, research and listening. Students will learn how to execute impromptu and persuasive speeches. Debate has the potential to impact most aspects of a student’s life as it provides an exceptional chance for students to cultivate and become proficient at life skills of oral communication and critical thinking.

### Honors Algebra
**Mondays (Grades 6-8)**

This course emphasizes the development of problem solving skills, all of which are important for the SAT. Topics covered include linear and quadratic equations, inequalities, exponents, radicals, and polynomials. Knowledge of pre-algebra, including operations with positive and negative numbers, is expected.

### Honors Geometry
**Thursdays (Grades 6-8)**

This is a formal Geometry course offered to students who have a strong aptitude in mathematics. Topics covered include angles, parallel lines and transversals, triangles, polygons, circles, perimeter and area, similarity and congruence, trigonometry, solids, surface area, and volume. The emphasis of this course is the development of problem-solving skills related specifically to problems in two or three-dimensional space.

### Java Programming
**Introductory**

**Mondays (Grades 6-8)**

Introductory Java teaches the object-oriented paradigm of the Java programming language. Prerequisite: Students must have successfully completed Introduction to Java.

**Intermediate**

**Mondays (Grades 6-8)**

Intermediate Java Programming introduces students to computer programming techniques using the Java Programming language. Students will learn the structure, syntax, and the object-oriented programming paradigm of Java.

### Introduction to Robotics
**Thursdays (Grades 5-8)**

Introduction to Robotics is a hands-on course designed to introduce students to robotics and programming. Students will learn the fundamentals of robotics and engineering, from electronics to programming, through the designing and building of their very own robots. After seven classes of technology, creativity, and problem solving, the program will conclude with a fun competition! Materials Fee: $20

### PLEASE VISIT:
**http://www.bergen.org/aah**
for you! In this course we will learn about the international bodies, as well as international issues. If you like web resources to research the United Nations and other these issues using Model UN procedures. Students will use Model UN is for you! In this course we will learn about the international math skills for the competitions. The class will cover team-building, communication, and rapid response, as well as the MATHCOUNTS’ topics: Counting, Probability, Statistics (Mean, Median, Mode), Patterns, Pythagorean Theorem, Area, Three-Dimensional Geometry, Proportions/Ratios/ Percents, Algebraic Equations, and Number Theory.

MATHCOUNTS Training Camp
Wednesdays (Grades 5-8)
MATHCOUNTS’ is a math enrichment and competition program for middle school students involving a series of fun and engaging contests up to the national level. This course motivates and challenges students as they develop strong math skills for the competitions. The class will cover team-building, communication, and rapid response, as well as the MATHCOUNTS’ topics: Counting, Probability, Statistics (Mean, Median, Mode), Patterns, Pythagorean Theorem, Area, Three-Dimensional Geometry, Proportions/Ratios/ Percents, Algebraic Equations, and Number Theory.

Mega History
Tuesdays (Grades 6-8)
Today people face dramatic new challenges on a global scale, just as science offers new tools with exciting potentials. Both the problems and the solutions are complicated, complex and connected across the sciences. This course invites students on an epic journey from the Big Bang to the future. Weaving together the social and physical sciences, the course gives students a framework for studying the really big picture in high resolution. Students will examine the connections between past, current, and future events. They will learn to put together the tools to help them tackle the opportunities emerging in a world that is changing at an accelerating rate.

Mock Trial
Saturdays (Grades 6-8)
Students in the Mock Trial course develop a greater understanding of the law and of the trial system in the United States. The course prepares them for middle school mock trial tournaments based on criminal cases. Topics include: basic knowledge of an attorney’s responsibilities and of court procedures, preparing an assigned case from both the prosecution and defense positions, assuming the roles of witnesses and attorneys, and presenting the case in the mock trial during the final class.

Model UN
Tuesdays (Grades 5-8)
Do you like to debate? Do you like international issues? Then Model UN is for you! In this course we will learn about the current state of world affairs and how to argue and debate these issues using Model UN procedures. Students will use web resources to research the United Nations and other international bodies, as well as international issues. If you like learning about and debating international issues, this class is for you!

Non-Routine Problem Solving
Tuesdays (Grades 5-8)
Students learn how to solve problems in number theory, logic, algebra, and geometry. Students work with experienced coaches and instructors in small, collaborative teams. They improve their problem-solving abilities by tackling challenges that involve creative thinking; they also learn strategies that can be applied to any kind of research. They are prepared to proceed beyond MathCounts to local, state, national, and international math competitions.

Our Solar System and Beyond
Mondays (Grades 6-8)
The 2017 Solar Eclipse, planets with and without rings, asteroids, comets, Pluto and even exoplanets (planets beyond the Solar System) will be studied in this course. What is the corona of the Sun? What powers the Sun? Which planet has a volcano that would dwarf Everest? What has New Horizons revealed about Pluto? Which planets have moons, and which of these moons are heftier than the Earth’s Moon? Why are Mars’ moons incapable of eclipsing the Sun? These and other questions will be explored in Our Solar System and Beyond.

Pre-Algebra
Mondays (Grades 5-7)
In this course we will explore mathematical concepts to prepare for algebra studies, including algebraic expressions, integers, equations, inequalities, decimals, fractions, ratios, proportions, percents, probability, area, and volume.

Read Like a Detective and Write Like a Reporter!
Wednesdays (Grades 5-8)
Do you want to be a movie or book reviewer, a blogger or just get a jump start on open-ended SAT responses? In this course you will learn how to read closely, like a detective, in order to write clearly! You will read a variety of texts that you choose and practice skills that help you identify facts, opinions, supportive details and structure. You’ll analyze central ideas, supporting ideas and claims. Then you’ll write a summary, like an investigative reporter! First, you will practice writing summary statements with a central idea on the meaning of the text you choose. Later, you will learn to explain your central idea based on your close reading of the text and write two points with examples that support it. Finally, you’ll end your response in a clever way, a clincher that circles back to the main idea in a clear last sentence that wraps it all up.

Super Smart Machines
Saturdays (Grades 5-8)
Since the first robot story, people have imagined computers that can think for themselves. Today artificial intelligence (AI) is the programming at the cutting edge of robotics, autonomous cars and drones, medical diagnosis, airline scheduling, business decision-making, character and image recognition, stock exchange predictions — and many more! Students will explore the field of artificial intelligence, learning about approaches such as expert systems, neural networks, and path finding algorithms. They will apply AI techniques in programming projects such as designing expert computer game opponents and designing virtual robots that can navigate around obstacles. Basic programming skills in Scratch or Python are recommended as pre-requisites.

Scholarships Available
Please visit our website to learn about scholarship opportunities:
http://www.bergen.org/aah
Writing for Literature
Mondays (Grades 7-8)

Using various genres, this class will teach you the skills and techniques for analyzing, discussing, and writing about literature. Students will respond to the works both through class discussion and in-class writing. You will then get individual feedback to improve your writing skills. This is an ideal class for students who want to improve their writing or who want to get some experience with the kind of writing found in the new SAT.

Courses are $300 each

Visit our website for online registration:
http://www.bergen.org/aah

Make checks payable to:
Bergen County Technical Schools
Send registration form and payment to:
Dr. Ken Mayers
Bergen County Academies
200 Hackensack Avenue
Hackensack, NJ 07601

Please note: Refunds will be issued only if requested prior to the first day of class, and are subject to a $50 processing fee.

For further information please call Grace:
201-343-6000 ext. 2286

The Academy After Hours Program is an outreach to area students seeking to pursue advanced work in pure sciences, humanities, mathematics and technology. Accomplished faculty members instruct the specialized courses. Several emphasize team/project work. In response to student requests, we constantly create new offerings. Proper placement is highly recommended because a few selections are sequential. Each course is designed for optimum student/teacher ratio, and is filled on a first-come, first-served basis. Students study in cutting edge technology facilities.

Course Dates are as follows:

Mondays: (4:30 PM - 7PM)
October 9, 16, 23, 30; November 6, 13, 20, 27.

Tuesdays: (4:30 PM - 7PM)
October 10, 17, 24; November 14, 21, 28; December 12, 19.

Wednesdays: (4:30 PM - 7PM)
October 11, 18, 25; November 1, 8, 15, 29; December 6.

Thursdays: (4:30 PM - 7PM)
October 12, 19, 26; November 2, 16, 30; December 7, 14.

Saturdays: (9:30AM - 12PM)
October 14, 21, 28; November 4, 18; December 2, 9, 16.

Math Team News
• 3 AMC Championships
• 45+ AIME (American Invitational Math Exam) qualifiers
• 1st Place Team: A-Star Math Tournament (ASMT)
• 8 USAMO (US Olympic Team exam) qualifiers
• 2015 – 3 participants at the US Olympic training program
• 2015 – Ryan Alweiss: Gold Medal, World Champion Team Member, International Math Olympiad

Registering for AAH Fall Courses
Registration opens Wednesday, August 16th. To register online, please go to:
http://www.bergen.org/aah

1. You will need to register each child separately. Please do not use the same ID to register multiple children!
2. For each child, you will need to provide a unique email address; we will contact you after the registration to confirm the preferred email address for communication with your family.
3. You will receive confirmation of registration followed by a payment form. We accept credit cards and checks.
4. Please contact us if you have any difficulty with the online registration and we will make sure your child gets registered. Call Grace at 201-343-6000 ext. 2286

Scholarships Available
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http://www.bergen.org/aah

Computer Science Team News
• Second Place, Senior-5 Division, American Computer Science League Contest (current standing)
• Two Teams in the ACSL All-Stars (Orlando, 2015)
• hackRPI: Best High School App, Best Web App

Model UN Team News
• 4 awards at Yale Model UN, including Outstanding Delegates
• 8 awards at Princeton Model UN, including Best Delegates
• 4 awards at Washington Area Model UN, including Outstanding Delegates
• 16 awards at NYU Model UN, including Best Delegates and Best Large Delegation