

Dear Potential Research Mentor:

The Science and Mathematics Academy (SMA) at Aberdeen High School is a school-within-a-school magnet program of 200 students that provides academically talented students with educational experiences that integrate science, technology, engineering and mathematics beyond the traditional advanced program. Admission to this rigorous, four-year program is by competitive application based on students' prior academic success and interest and motivation in science and mathematics. This program teaches students the skills needed to be leaders in the area of research.

A cornerstone of the SMA's program is Science, Research, and Technology (SRT), which is a signature series of courses taken by all 9th-12th grade students. SRT focuses on teaching students how to use problem solving skills and technology to conduct research. Essentially, students are taught how to *think and act* in a scientific way. In the senior year, each student conducts a capstone research project under the mentorship of a professional scientist, mathematician, or engineer. The culminating SRT capstone project allows students to demonstrate the skills and knowledge they acquired throughout their four years at the SMA.

Please consider working with an SMA and gain the benefit of that student's labor and ideas. The project may be related to your job or it could pertain to a personal area of interest. We encourage mentors to form teams with colleagues to lessen the demands on each individual mentor.

As a mentor, you would work with an SMA student to develop a project that the student can complete between September and May, and by working two to three days per week for approximately three hours at a time (11:00 am - 2:00 pm).

A selection of organizations that have provided Research Mentors:

Battelle; Black & Decker; Drayer Physical Therapy Institute; Drexel University; Ecotone, Inc.; Harford Community College; Johns Hopkins; Lockheed Martin; NASA; Raytheon; SAIC; SURVICE Engineering Company; Towson University; U.S. Army Edgewood Chemical & Biological Center; U.S. Army MRICD and ATC; U.S. Army Research Lab; USDA

If you are interested in becoming a Research Mentor, please contact:

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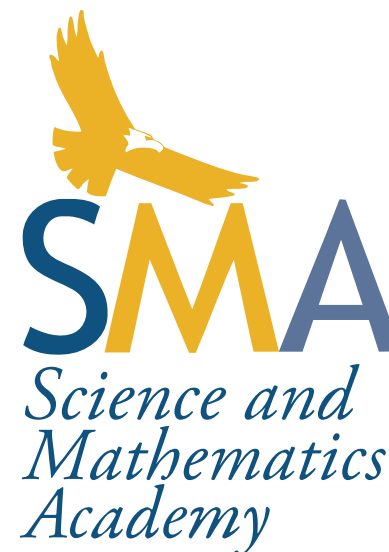


Visit us on the web at
www.scienceandmathacademy.com



Harford County Public Schools
www.hcps.org

MENTORSHIP PROGRAM



at Aberdeen High School



Advancing Education.
Enhancing Futures.

MENTORSHIP PROGRAM



The SMA is a proud Member of the National Consortium for Specialized Secondary Schools of Mathematics, Science, & Technology



Why should you become a Research Mentor?

It's an opportunity to...

- foster good scientific methodologies for senior students
- help develop the next generation of scientists
- create a synergistic relationship between scientists and students
- receive educational outreach credit for your company
- build your resume
- network with similar minded professionals
- encourage young minds to pursue a college major and career in science, technology, engineering, or mathematics by sharing your love of your chosen field
- collaborate with other professionals to build problem-solving and team-building skills in young minds



Previous Research Project Titles:

- Bicyclist level of comfort for Harford County analyzed and mapped in GIS
- How various physical phenomena affect a pyranometer's reading in diffused and direct sunlight
- Noninvasive censusing techniques for *Vulpes vulpes*
- Abuse liability study of inhaled vs. oral drug administration
- Testing protocol for secondary Nickel-metal hydride cells
- Security Analysis Tools for Android
- Analyzing the effects of bin width on the estimation on the dispersion of M1208

Not able to be a Research Mentor? Consider making an impact in other ways such as:

- guest teaching and speaking (skills, new technologies)
- providing field trip opportunities to your workplace, showcasing careers in STEM
- planning lessons in collaboration with teachers in any chosen area of science, technology, engineering and mathematics
- providing professional training and assistance to teachers of STEM
- assisting other mentors with your expertise
- offering summer internships, experiences, or training, to students and/or teachers
- assisting teachers and students with research project proposals

We are looking for Research Mentors who:

- use science, technology, engineering, or mathematics in their field
- have an interest in problem solving involving science, technology, engineering, or mathematics
- have a critical eye towards inquiry and problem solving
- conduct research in a lab setting
- have access to materials that could provide students with hands-on experiences in obtaining a new level of skills

Typical Research Timeline:

May/June: SMA juniors are matched with a mentor or a team. Begin to discuss interests and share knowledge and competencies

Summer: Shadow and receive technical training

August: Review of professional literature and background research

September: Submit research proposal, including methods, hypotheses, proposed statistical analysis or display of data, approximate timeline with milestone markers

October-March: Data collection, construction, problem solving, and ongoing literature summaries

April: Data analysis, results, presentations

May: Prepare posters and presentations for the SMA Research Symposium