

# SMA at Aberdeen

## THE MENTORSHIP HANDBOOK

for Professionals in Science, Technology,  
Engineering and Mathematics



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## INTRODUCTION

The students and staff of the Science and Mathematics Academy of Aberdeen High School (SMA) are grateful for the dedication, time and talents of mentors and mentoring firms who are providing valuable opportunities for students to experience a new dimension in Science, Technology, Engineering, and Mathematics (STEM) outside the classroom.

The mentoring process permits students to expand their interests and abilities in a professional setting, working with mentors who have chosen to share their knowledge, experience and talents. Students become stronger, more confident, self-sufficient, and creatively productive as they apply their critical thinking skills in solving challenging problems.

This handbook has been developed to provide mentorship program information and to assist mentors guiding and directing students in project development. Students will receive two and possibly three credits for their senior capstone project which will fulfill one of their SMA graduation requirements. The mentorship will also provide the mentoring firms with a useful resource of talent and a rewarding experience of working with highly motivated and extremely capable students.

## PROGRAM BACKGROUND

The SMA is Harford County's first "school within a school" magnet program. It is a unique public school program offering a comprehensive college preparatory program emphasizing the sciences, mathematics, and technology. The school serves students selected on the basis of aptitude and interest in the biological, physical, mathematical, and computer sciences, and who intend to pursue college preparation in the sciences, engineering, or related fields.

The SMA is the result of a partnership of business and education created to improve education in science, mathematics, and technology. Representatives from business, industry and the administrative staff of the Harford County Public Schools worked together in curriculum and facilities development for the school. The Harford County Public Schools and representatives of the local business community, along with local, state, and federal resources, have provided support for the school including cash, equipment, training, and technical assistance.

## SMA STUDENT SELECTION

Student selection is a competitive process based on prior academic achievement and aptitude for and interest in the study of mathematics, science, computer science, and related technologies. Stages of the selection process include an initial review of the applications by a selection committee. Final selection of students for the freshman class is based on standardized assessment scores, records of prior achievement, teacher recommendations, essay responses, and self-reported interests, awards, and activities.

## CURRICULUM

The unique college preparatory curriculum at the SMA provides opportunities to acquire knowledge and skills in all disciplines, with an emphasis on the STEM areas. The program balances enriched and accelerated courses providing development of specific knowledge and technical skills with rational discourse and scientific methodology. The learning environment is enhanced with technology and modern scientific equipment infused throughout the coursework.

## SENIOR CAPSTONE PROJECT

The senior capstone project graduation requirement is the culminating activity in a two year sequence called Program for Academic and Career Exploration (PACE). During the first semester of the junior year, students are introduced to the four PACE areas: 1) Computational and Mathematical Sciences; 2) Biotechnology and the Medical Sciences; 3) Environmental and Geosciences; and 4) Physical Sciences and Engineering. In the second semester, students work with a lead PACE teacher and outside mentors to refine their interests into a proposal for a capstone project within one of the four PACE areas. During the senior year, students will conduct their project research under the mentorship of a professional sponsor and present a final oral and written summary in May. Depending on the project, the site may include area laboratories, research facilities, and other field-based locations. This program provides the opportunity for concentrated technology research or project development in a specialized field under the leadership and direction of experienced scientists, engineers, and other professionals in scientific and technological business firms, education institutions, and government agencies.

## MENTORSHIP ARRANGEMENT

### Compensation

Students are not paid for the time spent at the mentorship site, but sponsors may choose to assist in various ways, such as waiving any parking fees.

### Transportation and Insurance

Parents/guardians are responsible for providing transportation to any off-campus facility necessary for the project. Students will only be placed at off-campus locations when all parties are in agreement that this is necessary for the project and appropriate supervision and transportation are available.

Parents/guardians sign the agreement indicating their sons/daughters are covered to their satisfaction by appropriate insurance.

### Mentorship Agreements

A mentor signs the agreement stating the conditions under which the student will work and the expectations of the mentoring firm. A mentor reference form, completed by the mentor's supervisor, is also required. See Appendix, "Mentor Reference."

## PROJECT SELECTION AND DEVELOPMENT

### Training Prior to Placement

As part of the junior year Science, Research, and Technology course (SRT III) students receive training in preparation for mentorship placement, including resume preparation, interview techniques, keeping daily logs and research writing.

### Goal Setting for Project Development

Goal setting must have the active involvement of the student, the lead PACE teacher, and the mentor. The mentorship program should assist in meeting the student's goals by benchmarking the project to ensure timely completion.

### Defining the Capstone Project

The capstone project may evolve from the student's interest in a particular aspect of the mentoring firm's work that corresponds with the student's prior SMA coursework.

The mentor may suggest particular aspects of the work of the sponsoring firm which might be suited to the student's research interest and involvement.

The student may be introduced to the nature of the firm's work and at the same time gain background skills and understanding of projects that relate to his/her interests by rotating through several divisions or projects before beginning work on a specific project.

The student may select projects involving research that can be carried out using a combination of the mentoring firm's facilities and school technology laboratories.

### Scope and Timeline

The project selected must be appropriate in scope to allow completion within the time frame of the senior year. In the case of exceptional projects, work may begin during the summer preceding the senior year. A student's schedule will allow a block of time from 11:30-2:30 every other day to focus on the project research. Extending the time beyond this block will be at the discretion of the student, mentor, parent, and lead PACE teacher.

### Materials and Equipment Budget

The student and the mentor must determine whether the materials and equipment required to support a proposed project are on hand or available. A budget of up to \$200 will be available for each student. Any budget needs must be outlined and accepted as part of the project proposal completed in the second semester of the junior year.

### Safety

Potential safety problems which may influence the performance of the project must be considered before the project begins. Plans for dealing with any potential difficulties should be part of the overall planning efforts described in the proposal.

## EXPECTATIONS OF THE STUDENT

The student will:

- Sign an agreement regarding school and work policies relative to mentorship. See Appendix, "Student - Parent - Mentor Agreement."
- Work under the supervision and direction of a mentor from a government, academic, business or industrial setting, utilizing the mentor's facilities if and when appropriate.
- Be a positive contributor to the overall results of the mentoring organization with his/her educational growth being a primary concern.
- Interact with members of the mentoring organization's work team(s) on a professional level.
- Abide by the mentoring organization's regulations and policies.
- Accept responsibility for duties, assignments, and agreement(s) entered into with the mentoring organization in a mature and professional manner.

## EXPECTATIONS OF THE MENTORING ORGANIZATION

The mentor will:

- Supervise the student in a meaningful project and suitable work environment to meet the student's project goals.
- Provide necessary mentorship, training, and guidance for the student to successfully complete his/her project.
- Develop a calendar of goals and objectives with the student while providing periodic checkpoints and deadlines for project completion in cooperation with SMA lead PACE teacher.
- Maintain contact with the school's mentorship coordination and lead PACE teacher.
- Complete periodic evaluations of student's progress furnished by the mentorship coordinator.
- Assist the student with the materials required and the coordinating and processing of information for the final completion of the project. An oral and written presentation will be required of the student.

## EVALUATION

The student will:

- Write a project proposal during the second semester of the junior year.
- Maintain a daily log, diary or lab notebook of his/her work, as specified by the mentor and the lab director, to be reviewed at frequent intervals by the SMA coordinator and mentor.
- Provide examples of work to the lead PACE teacher and the mentor on a regular basis.
- Coordinate with the SMA coordinator and lead PACE teacher who will provide specific guidelines on how the final project should be submitted to meet the lab requirements.
- Write a paper with acceptable format for academic research suitable for publication in the school's annual summary of research and/or in a scientific journal.
- Give an oral summary presentation of the project to peers, faculty, parents, and professional community.

The mentor will:

- Assist the student in providing examples of his/her work for the SMA coordinator's review.
- Assist the student in development of the project proposal, final project, and oral written presentation.
- Participate in periodic reviews of the student's progress and work habits with SMA coordinator and/or PACE lead teacher.
- Complete periodic evaluation reports as requested by the SMA coordinator.

## PROCEDURES TO SET UP MENTORSHIP TRAINING

When contacted by interested firms, the coordinator visits the firm to determine types of projects available, then works with students and lab directors to match student and SMA lab goals with those projects.

The mentorship coordinator is responsible for student training. The coordinator is also charged with maintaining contact with community firms to locate and investigate potential research projects for students, developing public relations and training materials for the program, placing and following up on students, and coordinating the evaluation of students and the program. The coordinator also serves as liaison among students, parents, teachers, mentors, and administrators.

The coordinator, Mrs. Donna Clem, can be reached by phone at school 410-273-5500, cell 443-417-6608, fax 410-273-5587, or e-mail at [donna.clem@hcps.org](mailto:donna.clem@hcps.org).

# APPENDIX

These forms are for reference only.  
Please do not remove appendices from the Handbook.

Harford County Public Schools  
SCIENCE AND MATHEMATICS ACADEMY  
MENTORSHIP PROGRAM

**MENTOR REFERENCE**

SCIENCE AND MATHEMATICS ACADEMY  
251 Paradise Road  
Aberdeen, Maryland 21001-2399  
HARFORD COUNTY PUBLIC SCHOOLS

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TO: THE SUPERVISOR OF \_\_\_\_\_

We are pleased that your firm has agreed to work with the Mentorship Program at the Science and Mathematics Academy (SMA) at Aberdeen High School, Harford County Public Schools. The mentorship experience allows students to expand their interests and abilities in a professional setting, working with mentors who have chosen to share their knowledge, experience and talents. Students become more confident and self-sufficient, as well as creatively productive, as they apply their critical thinking skills in solving challenging problems. The experience also provides the mentoring firms with a useful resource of talent and a rewarding experience of working with motivated students.

Students are generally highly motivated and do not need constant supervision. Students are expected to utilize the resources available and work independently, but they need to have available to them the expertise and knowledge of a mentor who will assist with problem-solving and provide direction and leadership as needed.

Harford County Public Schools requires that the Mentorship Office have this reference form, a resume, and a signed agreement on file for each mentor who is working with a student.

The above scientist/engineer has agreed to serve as a mentor for a student from the SMA. Your signature below indicates that you are aware of and approve of this mentorship arrangement and that you know of no reason why this individual cannot function in this capacity as a mentor working successfully with an adolescent student.

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

Please return to Mrs. Donna Clem, Coordinator, SMA at Aberdeen High School  
251 Paradise Road, Aberdeen, Maryland 21001-2399 or fax to Donna Clem at 410-273-5587.

Harford County Public Schools  
SCIENCE AND MATHEMATICS ACADEMY  
MENTORSHIP PROGRAM

## STUDENT AGREEMENT

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**The Student agrees to:**

- 1) Receive no pay for any work done in this placement.
- 2) Be on time and attend any scheduled meetings with the mentor.
- 3) Use the scheduled SRT IV time for the senior capstone project only, be on task at all times, and not have excessive absences during SRT IV.
- 4) Notify the mentor, faculty advisor, and school coordinator in case of absence or lateness in advance.
- 5) Exercise honesty, courtesy, and have a cooperative attitude while respecting and obeying rules of the mentor and his/her worksite.
- 6) Dress appropriately in accordance with business requirements.
- 7) Notify the school coordinator and faculty advisor of any problems, issues or questions.
- 8) Not accept transportation from another student or offer transportation to another student.
- 9) Adhere to all policies of Harford County Public Schools and understand that school policies also apply to the work site.
- 10) Ensure that he/she has a valid driver's license if he/she drives to work site.
- 11) Accepts responsibility for their own negligent actions.
- 12) Not be truant from their work site, understanding that if an infraction occurs it will be dealt with administratively.
- 13) Complete their senior capstone project only during the school year.
- 14) Use only research completed in the senior year. Other research projects completed prior to senior year may be awarded one additional SRT IV credit.

Student Signature \_\_\_\_\_ Date \_\_\_\_\_

Student e-mail address \_\_\_\_\_

Cell Phone \_\_\_\_\_ Home phone \_\_\_\_\_

Harford County Public Schools  
SCIENCE AND MATHEMATICS ACADEMY  
MENTORSHIP PROGRAM

**PARENT/GUARDIAN AGREEMENT**

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The Parent/Guardian agrees to:

- 1) Support the senior capstone project as a learning experience program for their child.
- 2) Give permission for the student to participate fully in the mentorship program.
- 3) Agrees that the senior capstone project can only be completed during the allotted time for SRT IV in the senior year.
- 4) Agrees to support the SMA faculty in upholding the HCPS rules and the project expectations.
- 5) Give permission for the student to leave school campus for the work-based learning placement, if required in the project proposal.
- 6) Arrange for transportation to and from the project work site.
- 7) Ensure and provide automobile insurance which covers the student’s vehicle, and a valid driver’s license, if the student drives that vehicle to the project work site.
- 8) Immediately notify the school coordinator and the faculty advisor if the insurance or driver’s license status changes and to cease allowing the student to drive to the project work site, if the student may no longer legally drive.
- 9) Accept liability and responsibility for the student’s travel to and from the project work site.
- 10) Accept responsibility for any negligent actions on the part of the student, if allowed by law.

Parent Signature \_\_\_\_\_ Date \_\_\_\_\_

Parent e-mail address \_\_\_\_\_

Cell Phone \_\_\_\_\_ Home phone \_\_\_\_\_

Harford County Public Schools  
SCIENCE AND MATHEMATICS ACADEMY  
MENTORSHIP PROGRAM

**MENTOR AGREEMENT**

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The Mentor and their sponsoring organization agree to:

- 1) Not pay the student any wages for work performed during this placement.
- 2) Not require a student to be present when school is not present.
- 3) **Ensure that commercial general liability insurance for business (including liability arising from student activities at the work site) is in effect.**
- 4) **Provide a certificate of insurance from the place of employment showing evidence of current coverage for General Liability.**
- 5) Permit the school coordinator and faculty advisor to make regular visits to the work site.
- 6) Provide a positive and safe learning environment and experience.
- 7) Be available to the student for questions, help and to provide guidance, etc.
- 8) Clearly define the company's expectations and the student's responsibilities, as applicable.
- 9) Notify the school coordinator and faculty advisor of any problems with the student.
- 10) Provide the student with adequate supervision.
- 11) Ensure that the student works with or along side several people. Situations where the student works alone or with just one other person in non-open areas should occur only when required by project necessity and with the concurrence of the school coordinator and faculty advisor.
- 12) Indemnify and hold harmless the Board of Education of Harford County, its officers, agents, and employees from any and all claims, loss actions, liability, demands, suits, or costs including attorney's fees and other costs connected therewith, arising out of or in any way related to this experience and/or placement.

Mentor Signature \_\_\_\_\_ Date \_\_\_\_\_

Mentor e-mail address \_\_\_\_\_

Cell Phone \_\_\_\_\_ Work phone \_\_\_\_\_

