LINCOLN
HIGH SCHOOL

Program for Scientific Inquiry

The Program for Scientific Inquiry

Background Information

Who are we?

The Program for Scientific Inquiry is an Academy for STEM (Science, Technology, Engineering, Math) professions, partnering with academic and business institutions in New York City and Westchester County. Students learn about, and prepare for, careers in STEM. The Academy teaches students how to be leaders, how to communicate, how to evaluate their successes, and to concentrate on their personal goals.

By performing independent STEM research projects, taking STEM classes and seminars, participating in internships and both regional and national STEM competitions, students acquire practical experience in the STEM world.

A little bit more about us:

The Lincoln High School Program for Scientific Inquiry (PSI) is a multidisciplinary STEM problem-based learning research academy in the Yonkers City School District. Since its inception in 2017, the program has given 1330 students (50%, female, 20%, black, 67% Hispanic, 11% ELL, 90% economically disadvantaged, 86% eligible for free lunch) opportunities to carry out authentic research projects. On average there are 130 students per year working on 40 to 60 independent research projects running simultaneously in the PSI lab. In addition to the work done in the PSI lab, a small percentage of students conduct original science research projects and hold internships at various institutions such as Memorial Sloan Kettering Cancer Center and Regeneron that expose them to various STEM career pathways. Students have competed in local, national, and international science competitions such as the Intel Science Talent Search, the Westchester Science and Engineering Fair, the Young Science Achievers Program, and Google World Science Fair.

The goal of the PSI is to increase the number of women, ELL, and underrepresented minorities being admitted to college for STEM and engineering professions. The LHS PSI bridges the gap between the classroom and the workplace. It provides students with 21st-century skills needed to function in today's workforce.

Course Descriptions

Science Research 1

Science Research 1 is the first course in a 4-year sequence that introduces students to the research experience and is open to all interested 9th grade students. In small groups, students are engaged in scientific methods through a variety of short-term science experiments. In the first semester, students learn the necessary skills needed in the more advanced research courses such as working with research lab equipment, improving journal article comprehension, research paper writing skills, public speaking skills, and the peer-review process. They are also exposed to the different careers in STEM. Students can work on projects in STEM and in the behavioral and social sciences.

Science Research 2

Science Research 2 is a sophomore/junior level research class designed to identify specific societal problems and use technology to resolve them. Students participate in a literature review to come up with a topic of interest. Based on their literature review, they identify and reach out to mentors for their project. They synthesize their objective and hypothesis, identify their independent and dependent variables, design and carry out their experimental protocols, collect and analyze their data. Students present their findings by drafting a research paper, creating a scientific poster board, and participating in various regional and national science competitions. At the end of the academic year, many students are matched up in a lab at a college, university, or medical center where they can do a research project with a scientist during the summer.

Science Research 3 & 4 (Junior/Senior)

During their junior and senior year, students work side-by-side with mentors on a two-year project. Students learn how to function in an adult working environment and develop many academic and personal skills that will be of lifelong benefit. The project culminates in a research paper, posterboard, and PowerPoint presentation. Students are expected to compete in various competitions. Additionally, students are expected to participate and organize the annual Science Research Symposium at Lincoln High School and lead the PSI club in various roles to plan events for the Academy.

Program Expectations

High Expectations Equal High Student Performance!

LHS PSI students are expected to:

- Punctually attend all classes and events
- Conform to the district wide attendance policy
- Work to the best of their ability when completing assignments
- Ask questions for clarification
- Complete all assignments ahead of deadline dates
- Learn how to work outside their comfort zone so they can grow and challenge themselves
- Compete with themselves and not with others in the class
- Attend program sponsored field trips
- Participate in, and successfully complete, a summer science research internship
- Participate in regional and national science competitions
- Attend the Annual Science Symposium, LHS PSI Lab Coat Ceremony, and Senior Graduation