

# PAEMS

## PRE-COLLEGE ACADEMIC EXPERIENCE IN MATH & SCIENCE

### THE CONCEPT

The **Georgetown College Pre-college Academic Experience in Math and Science (PAEMS)** is a 13-day residential program that provides academically motivated high school students with educational opportunities that are not normally available in secondary schools. Held on our beautiful campus in Georgetown, KY, PAEMS is designed primarily for students with an exceptional interest in mathematics and the natural sciences.

Each year, up to 26 students from diverse backgrounds and regions, preparing to enter the 10th, 11th, or 12th grades, are accepted into PAEMS. The program seeks to challenge students academically, stimulate their interests in math and science, provide a global perspective, foster creativity, and promote a team concept to problem solving.

In the classroom, in the laboratory, and in field environments, students will work side-by-side with Georgetown College faculty. Over meals, at breaks, during field trips, and through supplemental activities, they will **form close, positive, and supportive relationships** with professors and staff members, as well as their peers, to enhance their campus life experience.

**Field trips** that allow students to see applications of what they learn are an important part of the PAEMS curriculum. Participants see for themselves how their interests may ultimately lead to careers in industry, education, health science, biotechnology, government, or other fields. In recent years, field trips have included the University of Kentucky MacAdam Student Observatory, the Cincinnati Zoo and Botanical Garden, Toyota Motor Manufacturing, KY, Natural Bridge State Park, Hagyard Davidson McGee Equine Medical Institute, and the Nature Academy.

### THE PROGRAM

All classes will be taught by Georgetown College faculty, who will work with teaching assistants to develop special instructional and/or laboratory experiences for participants.

For most classes, students will be divided into two smaller groups of approximately equal size in order to provide plenty of individualized instruction.

The curriculum is divided into five modules: **Astronomy, Biology, Chemistry, Environmental Science and Ecology**, and **Mathematics, Statistics and Computing**. Each course varies somewhat from year to year, but here are our tentative plans:

- In **Astronomy**, students will study the planets, transition to the stars, and eventually consider the Big Bang, relativity, gravitational waves and the end of time. The college's planetarium will be a key teaching tool.
- The **Biology** module will explore both modern genetics and applied human physiology. Activities will include genetically transforming bacterial cells, isolating DNA, and recording an EKG.
- In **Chemistry**, students will be exposed to both traditional and state-of-the-art methods in synthetic chemistry, qualitative analytical chemistry, and inorganic chemistry.
- The **Environmental Science and Ecology** module will teach students how to characterize and monitor both terrestrial and aquatic ecosystems using a variety of field sampling techniques.
- In **Mathematics, Statistics and Computing**, students will learn the basics of computer programming, including variables, conditionals, and loops. These skills will be applied to various topics such as the quadratic equation, the golden ratio, probability, and data analysis.

Extensive lab involvement in most modules will permit students to develop lab skills using state-of-the-art equipment to gather and analyze data.

### CAMPUS LIFE

In addition to providing a jump-start on future college majors and lifelong careers, **PAEMS introduces high school students to campus life** with adult support and supervision. All students will live in one of the college's dorms and eat meals served in the cafeteria. The residence hall will be staffed by camp resident assistants who will be supervised by PAEMS faculty. Successful applicants will be provided detailed information about the residence hall as well as campus rules and regulations.

### COSTS

Tuition for the 13-day PAEMS program is **\$700**, which includes housing, most meals, field trips, transportation, and all instructional materials. Students will want to bring spending money for off-campus meals, snacks, and other personal items.

Georgetown College is committed to making the PAEMS program available to all interested and deserving students, regardless of their current financial situation. Some need-based grants are available. A need-based grant application is included with the online application.

### APPLY ONLINE

Visit [www.georgetowncollege.edu/paems](http://www.georgetowncollege.edu/paems)

**FOR MORE INFORMATION:**

Email [paems@georgetowncollege.edu](mailto:paems@georgetowncollege.edu)

Phone **502.863.7978**

We will continue to accept applications until all positions are filled.

