



Upward Bound Math & Science Program

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Background

Established in 1992, The University of Akron Upward Bound Regional Math and Science Program is a unique effort to promote the pursuit of undergraduate mathematics and science education among high school students meeting program criteria. With a particular focus on polymer science, the program features 3 distinct components: a six-week summer residential program; a bridge program; and academic year activities. Believed to be the nation's only pre-college polymer program, it takes advantage of Akron's location in the heart of "Polymer Valley" and the state-of-the-art resources available in The University of Akron's Polymer Science facilities.

Program Objective

- To provide students with the skills and motivation necessary to pursue and complete undergraduate studies and careers in mathematics and the sciences.
- To increase math/science skills of students by providing an enjoyable, hands-on learning experience.
- To teach students to apply and appreciate math and polymer science in the world around them.
- To provide students with opportunities to use computers and learn how computer applications apply to science research.

Program Staff

Coleen Curry

Director Academic Achievement Programs

John P. Vesalo

Coordinator

Antoinette East-Jenkins

Academic Advisor

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Secretary

Who Can Participate?

Fifty-eight students who:

- Attend one of the 7 public high schools in the Akron City School District
- Are entering their freshman or sophomore year in high school.
- Have demonstrated interest in, or have the potential to enjoy and succeed in an accelerated math/science curriculum.
- Possess a level of maturity enabling them to live away from home for six weeks.
- Meet federal income and/or first generation college criteria (neither parent has earned a bachelor's degree).

Program Services

Summer Component

The six-week summer residential program consists of integrated instructional classes in Polymer Science/Chemistry, Mathematics, English/Technical Writing, Latin, and Computer Science plus hands-on laboratory courses in Polymer Science and Computer Science. Other components include: research experiences; career exploration; field trips; cultural experiences; recreational activities; college visits; a work internship program and mentoring by polymer science professors.

Bridge Component

Upon graduation from high school, participants may enroll in up to 7 credit hours of college courses at The University of Akron. Tuition and books are paid by the program.

Academic Year Component

Monthly workshops, tutorials, science trips, engineering and research projects, and/or activities using the Internet and the World Wide Web are provided. Emphasis is placed on visualization and "doing" science and math using hands-on projects, independent research, faculty interaction and mentoring.

Why Study Polymers?

Seventy percent to eighty percent of everything we come into contact with daily has a basic polymeric structure. Polymers range from rubber and plastics to human hair, skin and muscles, computer chips, cotton, wood, Plexiglas, adhesives, lubricants, silk, DNA, and more. Currently polymers are the "hottest", most researched materials in the world, the result of which is diverse career opportunities with high earning potential.

Program Cost

There is **NO COST** to qualified students for the six-week program. The program covers expenses for transportation to and from the program, dormitory housing, meals, field trips and cultural events, classes and course materials. In addition students receive stipends to cover miscellaneous expenses.

Achievements

- 70% college persistence rate of grads
- 95% of participants receive scholarships and/or financial aid for college
- 2008-2013 UBMS grant ranked in top 10% of those in USA
- Nationally recognized research project
- Featured on PAX23 TV, Akron Beacon Journal
- Published in science textbook, journal articles and state and regional conferences.

Supporting Partners

U.S. Department of Education
 U.S. Department of Agriculture
 The University of Akron
 Department of Polymer Science
 American Chemical Society
 The University of Akron
 College of Engineering
 National Museum of Education
 Local industry/research facilities