



Rutgers 4-H STEM Ambassador Program

A Science Technology Engineering and Mathematics (STEM) program for high achieving young people who are underserved and underrepresented in STEM fields



The Rutgers 4-H STEM Ambassador program is designed to enrich young people's interest and competency in science, technology, and communications by having direct experiences with Rutgers University faculty, graduate, and undergraduate students. **The program creates and supports 4-H Science Technology Engineering and Mathematics (STEM) Ambassadors who share their experience, new knowledge, and understanding of STEM topics and campus life with other students in their community through employment and/or**

volunteer opportunities through local 4-H offices. Now in its tenth year, it has matured into a vibrant STEM program that engages students in learning what it means to be a scientist.

PROGRAM OUTLINE

This *five-day* kick-off to the program, which is held on the Cook Campus of the School of Environmental and Biological Sciences (SEBS) at Rutgers University, New Brunswick, follows this outline:

- Day 1:** **Check-in and orientation:** Youth participate in team building activities and engage in hands-on lessons exploring the nature of science with Rutgers science undergraduates.
- Day 2:** **Discovery and Exploration Sessions:** Participants meet and interact with a panel of scientists. The session is designed to help them learn about the scientists' personal journey and how they became scientists. Later, youth engage in hands-on science workshops lead by university scientists. Participants interact with an undergraduate student panel and admissions dean during an evening social, then have the opportunity for recreational time utilizing the University Recreation Center.
- Day 3:** **Pursue Session:** Youth engage in full day research alongside Rutgers scientists and engineers. Participants explore research questions, collect and analyze data, and work in groups to produce a science poster.
- Day 4:** **STEM Ambassador Training:** Participants engage in hands-on training sessions by both their peers and Rutgers scientists and engineers. With their new knowledge our STEM Ambassadors will teach back to younger youth in their communities.
- Day 5:** **Closing Luncheon:** New STEM Ambassadors present their posters and are recognized for their work by their families and the Rutgers science community. The closing luncheon includes an inspirational speaker.

Who Participates in 4-H Summer Science?

Youth: In 2017, 57 underserved and/or underrepresented teens from 7 New Jersey counties including Atlantic, Essex, Hudson, Mercer, Middlesex, Passaic, and Union, joined the Rutgers 4-H STEM Ambassador program.

Rutgers University Scientists: Approximately 40 Rutgers University scientists including professors, post docs, graduate, and undergraduate students participate in the program at the Discovery, Exploration and Pursue levels. Scientists report that not only do they receive personal rewards for working with these high-achieving youth, but they also feel they are contributing to the viability of the future STEM workforce by supporting and nurturing these young peoples' interest in science.

PAST PARTICIPANT SUCCESS

A total of 243 youth participated in the Rutgers 4-H STEM Ambassador program between 2009-2014. In 2015, we surveyed past program participants about their experience in the program (n=105 survey responses with a 43% response rate).

Results

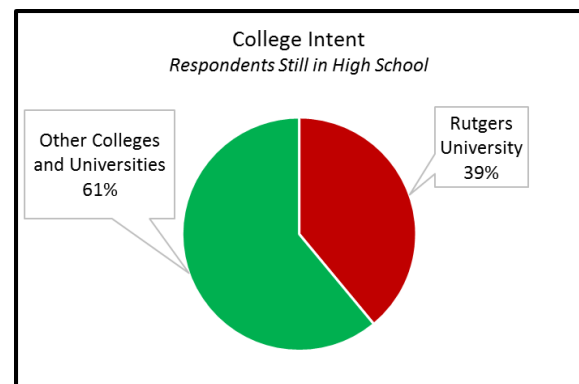
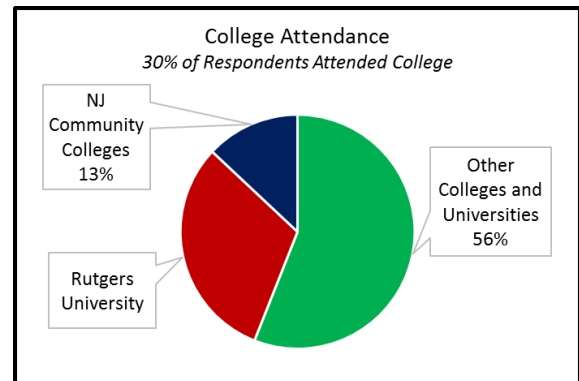
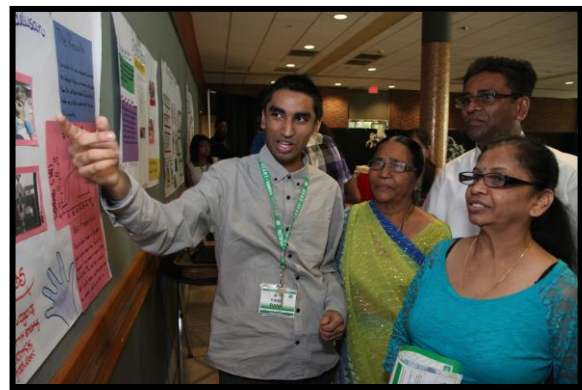
- 50% reported positive change in motivation to learn about science
- 82% believe interactions with scientists motivated and supported learning
- 55% can see themselves as STEM professionals
- 70% feel participation better prepared them for college
- 30% were enrolled in college

Past Participants – Attended College

- 31% attended Rutgers University
- 59% enrolled in STEM major or interested in STEM career
- 34% enrolled or interested in medical major or career

Past Participants – Current High School Students

- 65% were in high school during survey period
- 72% interested in pursuing a STEM major/career
- 39% interested in attending Rutgers University





Engaging the Next Generation of Scientists

The Rutgers 4-H STEM Ambassador Program is structured to expose participants to a broad range of STEM disciplines while increasing their awareness and comfort level with college life. Survey participants commented on how their interactions with scientists support their STEM learning:

"4-H provided a foundation for understanding the diversity of science based fields."

"I feel like my interest for engineering increased the most and as well as my interest in the math field."

"It let me realize that science isn't just laboratory work and all inside in a confined space. Going with the ecologists let me know that there are different options and paths I could take."

". . . The Rutgers scientist really helped me explore the different options with science, and greater increased my interest in the field of science."

Continued Engagement in STEM and Community

The Rutgers 4-H STEM Ambassador Program has engaged a large number of participants in county level programming to "give back and teach back" in NJ urban cities.

Results:

96% of participants stayed involved with their local 4-H program by:

- Teaching hands-on science to youth in their communities
- Recruiting and training new STEM ambassadors
- Becoming 4-H club members

4-H STEM Ambassadors are active leaders in their communities:

"I have joined a 4-H Club and have participated in most events we have planned. I have represented 4-H in different events and continue to look for ways to volunteer and help out our community through 4-H."

LOOKING AHEAD

The New Jersey 4-H program seeks to continue to expand the Rutgers 4-H STEM Ambassador program by increasing opportunities for young people. We are currently seeking additional funding to bring more young people on campus to benefit from this unique experience.

For more information, contact:

Chad Ripberger: ripberger@njaes.rutgers.edu

Janice McDonnell: mcdonnel@marine.rutgers.edu