

CUR 2006 Student Research Experience



Shakeilla L. Howell

Class: Junior

Age: 20

Major: Biology Pre-Medicine

Hometown: East Orange, NJ

Program Information

Name: Donald Danforth Plant Science Center's Undergraduate Research Internship Program

Length of Program Participation: 11 weeks

Location: St. Louis, Missouri

The Center for Undergraduate Research: How did you find out about the program?

Shakeilla Howell: I found out about the program through Xavier University's premedical office and my faculty advisor.

CUR: Did the program pay for travel expenses, room and board, meals, etc.?

SH: The program refunded all of my travel expenses and provided free room and board in luxury furnished apartments. These apartments included tennis, volleyball and basketball courts, a pool and gym, and movie rentals—all included in the housing with no additional cost! Food was provided occasionally, however, students were usually responsible for providing their own food. In addition, students are provided with a \$4,400 stipend.

CUR: What type of research did you do in the program?

SH: I was involved in plant biological research. By performing intensive laboratory research, I was able to study several genes from cassava geminiviruses and their role in suppressing posttranscriptional gene silencing in a species of tobacco plant, *Nicotiana benthamiana*. In addition, the function of RNA-dependent RNA polymerase on cassava geminivirus infected *Nicotiana benthamiana* was studied.

CUR: Did the program offer sufficient hands-on experience?

SH: Yes, I performed hands-on laboratory procedures including:

Plasmid isolation, Restriction digestion, Agarose gel electrophoresis, Elution of DNA from Agarose gel, ligation, *E.coli* transformation, Sequencing, *Agrobacterium* transformation, Plasmid conformation in *Agrobacterium*, *Arabidopsis* transformation and screening for transgenic plants, microscopic analysis.

Seed germination, viral DNA preparation, inoculation of viruses into plants using particle bombardment, symptom scoring and evaluation of virus load by using Southern blot analysis.

CUR: If any, what activities did you do outside of the program?

SH: Some activities included strawberry picking, an opportunity to go to a water and adventure park, barbecues, softball games, major league baseball games, going to outdoor Shakespearean theater festivals, and bowling. These activities were all incorporated into and paid for by the program. Outside of the program, there are many plenty of exciting places for students check out. Sightseeing places like the St. Louis Arch and museums are fun. There's also salsa and other dance clubs and fabulous restaurants!

CUR: Did this program exceed your initial expectations?

SH: It certainly did.

CUR: How has this program helped you in regards to your major or future goals?

SH: I am currently applying to medical school. This research experience further solidified my interest and appreciation for the impact that medicine has on my community, and the world.

CUR: What was the most difficult aspect of your participation?

SH: The most difficult thing about my participation was just in learning some of the basic laboratory techniques. As a learning student you're bound to make more than a few errors during your research. It can be frustrating if your results do not come out as anticipated, but that's why research is a learning experience.

CUR: Name the best thing about your experience.

SH: What I really enjoyed about the program was not only the science aspect of research, but also the wonderful friends and contacts I made. I loved my research and made lasting friendships. I was able to meet students and mentors from various parts of the country and the world. The experience really opened my eyes to the variety of cultures, languages, and opinions out there.

CUR: Would you recommend this program to others? Why or why not?

SH: I highly recommend it to anyone interested in biological research. The research provides you with knowledge and application of the latest techniques and technology of laboratory research. In addition, each student is provided the opportunity to present their research to scholars and others interested in research. Also, the program is closely tied with Washington University's graduate school, and encourages participants to consider attending their school.

CUR: How can others prepare for this program before applying?

SH: Applying early to the program never hurts your chances of getting in. However, this program is *really* interested in diverse and dedicated students, so Xavier students already have a great edge.

For more information about this program please visit:

<http://www.danforthcenter.org/internship/>