

## STUDENT EVALUATION

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**Student:** Haley Higginbotham  
**High School:** Edgewood Jr./Sr. High School

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**Date:** September 30, 2016

### I. RESEARCH (IRP)

IRP Sponsor: Dr. Jonathan Dennis, FSU Department of Biological Science  
Project Title: Linking Nucleosome Sensitivity Changes to Stimulation of Human Cells

Dr. Dennis was very pleased with the contributions Haley Higginbotham made to his ongoing research during the 2016 Young Scholars Program, awarding a rating of “Excellent” to Haley’s final project. Dr. Dennis commented:

I was wonderfully pleased with the contributions Haley made to the Individual Research Project (IRP) during the 2016 Young Scholars Research Program. I directly supervised Haley on a graduate level project in which she mapped changes in the organization of the human genome after human cells had been stimulated with the signaling pathway inhibitor purmorphamine. I directly supervised Haley in my lab. We worked together for at least eight hours a day on Tuesdays and Thursdays during the program. Haley’s work ethic was admirable. The project was particularly difficult requiring mastery of a large amount of college level molecular biology and graduate level wet lab skills. Haley was equal to both of these tasks. Consequently the project was so successful that we will continue to work on the project and analyze the results throughout the coming school year to prepare a manuscript for a peer reviewed publication in a scientific journal.

Haley is one of the most able scientists and thinkers I have encountered in my teaching career. Haley has an eagerness to learn that is truly admirable. Haley would frequently come to me to ask a question about her experiment that went well beyond my understanding. Her questions were always on point and well researched.

Haley’s poster presentation at the end of the six weeks was of a quality and scientific depth that I could show at a professional meeting. Haley had considered all aspects of her project: the technology, the experimental system, the approach and the analysis. She developed a poster that was information rich, clear, and aesthetically pleasing. Haley is working at a level far beyond her age. It was an absolute pleasure working with a scientist of this caliber.

Haley has a delightful personality, and is a pleasure to teach. She was always respectful of my time, clear and concise in her communication, devoted to learning, and quick to smile when a thought crystallizes in her mind. Haley made the very most of this YSP opportunity. She is a rising star and is on track to become an outstanding STEM-educated citizen. Please contact me if you would like any further elaboration.

**II. ACADEMIC COURSES:** Haley Higginbotham was a top performer among some of Florida's brightest high school students in the rigorous academic portion of the 2016 Young Scholars Program. Every student was enrolled in their choice of a mathematics course (either "Mathematical Models and Problem Solving" or "Topics from Calculus and Differential Equations"), a computer programming course (either "Scientific Computing with C++" or "Computer Science with Python"), and a science course (either "Dynamic Organization of the Human Genome" or "Physics of the 20<sup>th</sup> and 21<sup>st</sup> Centuries"). Detailed information about Haley's performance follows.

**A. MATHEMATICS:**

Course: Topics from Calculus and Differential Equations

Instructor: Dr. Richard Oberlin

Grade/Rank: A

Dr. Richard Oberlin commented: "Haley was a pleasure to have in class. She is exceptionally bright and hard-working, and even as a high school senior, would likely be one of the top three students in any Freshman or Sophomore level FSU math class."

**B. COMPUTER PROGRAMMING:**

Course: Computer Science with Python

Instructor: Mr. Michael Borsellino

Grade/Rank: A

Mr. Michael Borsellino commented: "Haley demonstrated a firm understanding of all concepts taught this summer- all of her code ran without issue, and I appreciated the extra creative components she often included in assignments. Her willingness to ask questions and to immerse herself in her work, to the point where I often had to stay after class to let her and a couple other students sit and code for an extra half hour, will serve her well in college. One area she should aim to continue to practice and further develop good habits is in observing documentation conventions."

**C. SCIENCE**

Course: Dynamic Organization of the Human Genome

Instructor: Dr. Jonathan Dennis

Grade/Rank: A

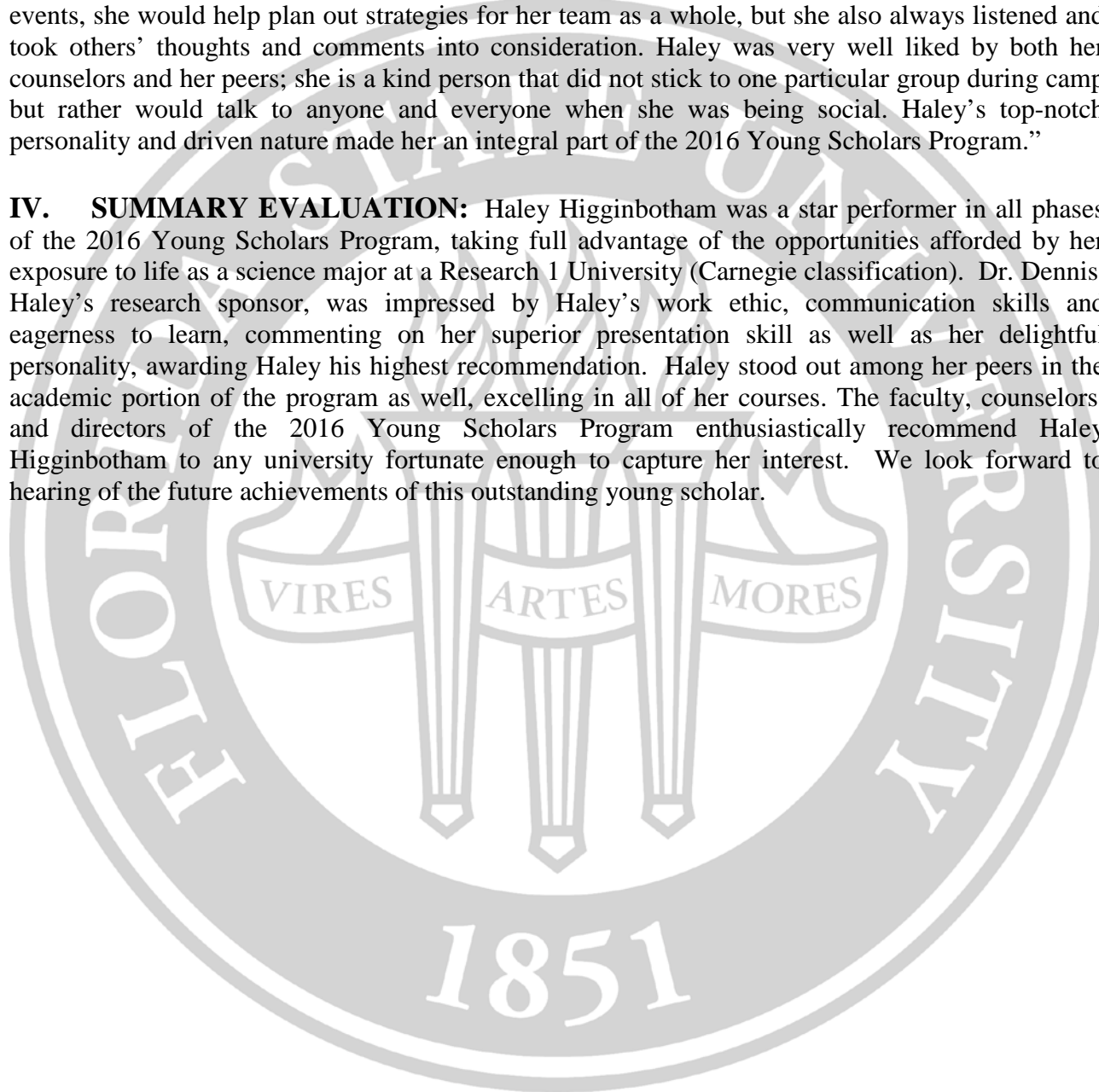
Dr. Jonathan Dennis commented: "Haley mastered graduate level molecular biology techniques and interpretation of experimental data. She was a model laboratory citizen and went out of her way to help and assist others with their experimentation. All evidence from this class indicates that Haley is on a trajectory to become a rising star in the Biological Sciences."

**III. COUNSELOR EVALUATIONS:** The counselors for the 2016 Young Scholars Program were impressed with Haley, awarding her above average ratings for maturity, self-confidence, initiative, integrity, leadership, cooperation, and communication skills. The counselors commented: "Haley is an exceptionally driven young woman. During her time at the 2016 Young

Florida State University  
2016 Young Scholars Program

Scholars Program, Haley was incredibly busy, even more so than her peers. When she was not occupied with class or research, Haley could always be found working to achieve her personal goals; notably, she would wake up hours before necessary every morning to run so that she could stick to a strict exercise regimen. She worked incredibly hard in all aspects of her life, and she personified the term 'productivity' this summer. In addition, Haley is very innovative and always makes the best of any situation. She was eager to participate and never complained. During team events, she would help plan out strategies for her team as a whole, but she also always listened and took others' thoughts and comments into consideration. Haley was very well liked by both her counselors and her peers; she is a kind person that did not stick to one particular group during camp but rather would talk to anyone and everyone when she was being social. Haley's top-notch personality and driven nature made her an integral part of the 2016 Young Scholars Program."

**IV. SUMMARY EVALUATION:** Haley Higginbotham was a star performer in all phases of the 2016 Young Scholars Program, taking full advantage of the opportunities afforded by her exposure to life as a science major at a Research 1 University (Carnegie classification). Dr. Dennis, Haley's research sponsor, was impressed by Haley's work ethic, communication skills and eagerness to learn, commenting on her superior presentation skill as well as her delightful personality, awarding Haley his highest recommendation. Haley stood out among her peers in the academic portion of the program as well, excelling in all of her courses. The faculty, counselors, and directors of the 2016 Young Scholars Program enthusiastically recommend Haley Higginbotham to any university fortunate enough to capture her interest. We look forward to hearing of the future achievements of this outstanding young scholar.



Florida State University  
2016 Young Scholars Program

**V. GENERAL PROGRAM INFORMATION:** The Florida State University Young Scholars Program is an academically intensive, six-week, residential program for talented rising high school seniors, held each summer on the Florida State University campus in Tallahassee. The program is funded through Florida State University and the College of Arts and Sciences, and operates through the Office of Science Teaching Activities.

In the 2016 curriculum, each young scholar attended a total of three courses in the fields of mathematics, science, and computer programming, each of which met three times per week. For mathematics, students were enrolled in either “Topics from Calculus and Differential Equations” (Dr. Oberlin), or “Mathematical Models and Problem Solving” (Dr. Kercheval), both especially designed for the Young Scholars Program by FSU mathematics faculty members. The computer science courses were coordinated by the chairs of the Department of Scientific Computing (Dr. Erlebacher) and the Department of Computer Science (Dr. Xin Yuan) and were taught by doctoral candidates from the respective programs, specifically, “Scientific Computing with C++” (Mr. Smith) and “Computer Science with Python” (Mr. Borsellino). Finally, the science courses met for nine hours per week of lecture and lab. The two science options were “Physics of the 20th and 21st Centuries” (Drs. Capstick, Prosper, and Wahl) and “Dynamic Organization of the Human Genome” (Dr. Dennis).

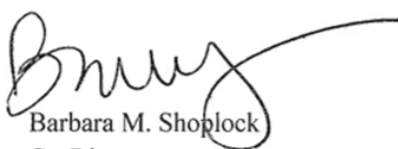
In the research component of the curriculum, each student spent two eight-hour days per week working in the lab of their Individual Research Project sponsor, one of twenty faculty volunteers from departments including Biological Science, Chemical and Biomedical Engineering, Chemistry and Biochemistry, Civil and Environmental Engineering, Computer Science, Industrial and Manufacturing Engineering, Molecular Biophysics, Mechanical Engineering, Physics, and Scientific Computing. Students worked under the supervision of their faculty sponsor, postdoctoral associate(s), laboratory staff, and/or graduate student(s) to complete a project that related to some aspect of the ongoing research of the sponsoring lab. The research experience culminated in a poster session that was held on July 21 and attended by faculty and staff from across the university.

The forty students were selected from a very competitive pool of over two hundred applicants using traditional college selection criteria, both academic and personal. The average unweighted-GPA of participants was 3.97 out of 4.00, and the average national standardized test score in math (i.e., SAT, ACT, PSAT, or PLAN) was in the 98th percentile. Of the thirty-four students whose schools provided ranks, 88% were ranked in the top five percent of their class entering their senior year.

The information on this form was compiled from the written evaluations of the course faculty, the individual research project sponsor, program counselors, and program administrators.



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