



2024 Pre-College Program Course Performance Report

Student Name: Samika Jain

Course Title: Laboratory Research in Biomedicine

Instructor Name(s): Donna Lizotte

Program: Summer@Brown

Course Description: In this laboratory-intensive course, you will be introduced to various topics and techniques in molecular biology, molecular genetics, and biochemistry which are fundamental to research across multiple life science disciplines. In addition to the hands-on laboratory experiences, you will be introduced to the theoretical background of the techniques as well as their application to different areas of biomedical research.

During this course, you will:

- Develop technical skills and confidence through hands-on laboratory work.
- Develop problem-solving and critical thinking skills associated with conducting experiments and analyzing their data.
- Gain an understanding of molecular biology and biochemistry laboratory techniques essential for pursuing future original research at any level.

You will conduct a number of classical techniques including restriction enzyme analysis, agarose gel electrophoresis, and polymerase chain reaction (PCR). In addition, you will gain experience with more advanced procedures including sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) analysis, and protein detection utilizing an enzyme-linked immunosorbent assay (ELISA). You will also critically evaluate and analyze the data that you generate. The course will culminate in a final experiment where you will employ many of their newly acquired laboratory skills to carry out an experiment using cutting-edge CRISPR technology.

For the following statements, instructors reflected on this student's performance using the following scale: Never, Rarely, Sometimes, Most of the time, Always, N/A. Please review your instructor's responses to each question and then read the narrative student evaluation below.

This student completed assignments on time.: Always

This student submitted quality work.: Always

This student productively collaborated with their peers.: Always

This student displayed strong engagement with the course and course materials.: Always

This student constructively contributed to the course content or classroom environment.: Always

This student was responsive to feedback.: Always

Student Evaluation:

Please share feedback on the student's strengths as displayed during your course.

Samika Jain did an excellent job in this course. She quickly mastered the necessary micropipetting skills and was soon producing solid, interpretable data on the assigned lab work. With each new experiment, she demonstrated growth in both her technical skills and her confidence. By the end of the first week, she appeared comfortable working in the laboratory

and was self-sufficient. She was consistently prepared for each class and asked appropriate clarification questions when necessary. Samika worked collaboratively with her laboratory partner, approaching their experiments carefully and efficiently. She demonstrated she could follow a multistep, complex scientific protocol with ease.

Please share constructive feedback on areas of improvement as displayed during your course.

Samika's written work was equally well done and she continued to demonstrate growth during the course. Her work was thoroughly and thoughtfully completed and conveyed a strong understanding of the theoretical concepts. She showed that she was making the appropriate connections between the material covered in the reading and lecture and her work in the laboratory.

Please share highlights of the student's course assignments, group work, level and type of engagement, collaboration, and student growth.

Of particular note were the results Samika and her lab partner achieved while observing total protein extracted from various fish muscle tissues. They methodically followed the extraction procedure, ensuring consistent total protein yields across all six samples. Subsequently, they took great care in executing and analyzing the proteins using SDS-PAGE, culminating in an exceptional final result. It was a pleasure to have Samika Jain in this course.