**Prompt 1**

***Considering the specific undergraduate school you have selected, how will you explore your academic and intellectual interests at the University of Pennsylvania?  For students applying to the coordinated dual-degree and specialized programs, please answer these questions in regard to your single-degree school choice; your interest in the coordinated dual-degree or specialized program may be addressed through the program-specific essay. (300-450 words)***

My introduction into bioplastics started from my high school research project where I experimented on the tensile strength and elongation factors of a starch-based polymer. It was interesting to see how bio-based materials have properties comparable to that of conventional petroleum-based materials; plus, biopolymers have approximately 20 times higher degradation rate than conventional polymer, making biopolymers a no-brainer choice of polymers. Throughout my journey into bioplastics, I realized that, despite their obvious advantage, bioplastics have not really been adopted by the masses yet! As I further explored the reason for this discrepancy, I learned that the bottleneck lies in the high manufacturing cost leading to a high market price, thus, restricting their mass adoption. My search for methods to lower the manufacturing cost of bioplastics and promote their mass adoption eventually led me to Chemical Engineering. Its unique skill set in knowledge of momentum, heat, and mass transport phenomena of fluids flowing through a geometrical cross-sectional area as well as competencies in process design and control will enable me to delineate solutions into optimizing and decreasing bioplastics’ manufacturing cost.

At Penn, I aim to gain competencies in bioplastics by focusing on “Polymer and Soft Matter Science and Engineering.” Penn’s courses in “Physical Chemistry of Polymers and Amphiphiles'' and “Polymer Rheology and Processing” will allow me to understand the basics of polymerization processing and its characteristics. Supported with the “Experimental Methods for Polymer Science and Soft Matter” and “Polymers and Biomaterials” courses, I am excited to be able to convert my gained theoretical knowledge into implementations of the characterization and lab-scale manufacturing of different types of polymers. This will provide me with experiences and insights into transferring this knowledge into bioplastic manufacturing through innovative research and development as well as economic feasibility studies of future emerging bioplastic manufacturing processes.

Not limiting myself to classroom activities, I am eager to connect and work with one of the best in the field of bioplastics at Penn. I have read some of Prof. Russell J. Composto’s work. One of the most profound work I read was the “Nanomechanics of pH-Responsive, Drug-Loaded, Bilayered Polymer Grafts,” which helped me greatly with my high school research project on identifying the different factors and independent variables that would affect the mechanical properties of bioplastics. As such, I will be looking forward to explore my interest in bioplastics by working on bioplastic-related research in Prof. Composto’s research group as well as utilizing Penn’s research facilities, such as Laboratory for Research on the Structure of Matter (LRSM).

My years at Penn will not only be a worthwhile experience, but a place where I will be able to break through and develop new ideas that may help the environment and society.

**Prompt 2**

***At Penn, learning and growth happen outside of the classrooms, too. How will you explore the community at Penn? Consider how this community will help shape your perspective and identity, and how your identity and perspective will help shape this community. (150-200 words)***

Music has always been my passion, be it playing alone or in a band. The instruments that I play best are piano and guitar. In high school, I participated in music competitions and joined a gospel worship band. My experiences in these competitions and band have shaped my enjoyment in performing in public and transfer my joy for music onto everyone.

With Penn being an institution that fosters diversity and caters the students’ continuation of their passion in college, I look forward to continuing my musical journey in Penn’s “MINHUET” and “SPEC Jazz & Grooves.” They will provide me with the opportunity to encourage the people in need with my music and, hopefully, allowed me to pursue my second dream (besides becoming an engineer) as a music artist. Moreover, I plan to contribute to Penn’s community by performing during exam weeks in hope to calm down my peers during these stressful weeks.

Music can be enjoyed by everyone and anyone, and can help bring communities together across generations, social classes, cultural identities, and ability in a way that no other medium can. And I want to be able to be one of them who is able to bring these communities together.