Describe your overall duties/responsibilities as an Associate R&D Staff:

My role at Oak Ridge National Lab is to help reduce the environmental impact of the manufacturing industry in the United States and help the U.S. Department of Energy reach its goal of a 100% decarbonized manufacturing industry by 2050. Along with my many colleagues, we work to de-risk the industrial adoption of more sustainable materials, such as renewable – i.e. plastics made from plants – and recycled materials made from petroleum in their first life to prevent landfilling of plastic. I work in the lab with my colleagues to demonstrate sustainable chemistry and manufacturing at scales relevant to industry so they are more likely to adopt sustainable materials and manufacturing methods in their processes.

Explain the skills/abilities that are required for being successful in your role:

Someone in my role needs to have knowledge of the technical expertise and transformational R&D that is being developed at top-tier universities (such as Ohio State) while simultaneously engaging often with small- and large- businesses in the U.S. manufacturing industry to learn how these solutions can solve problems in their processes at scale. Often the challenges associated with adoption of benchtop R&D that is done at Universities is the lack of understanding at scales relevant to the industry. I play a key role in the scale-up of benchtop processes to scales that can convince the industry to actually use sustainable materials, and using demonstrations to prove the case-study. We also provide estimates of greenhouse gas emissions and costs associated with changes that need to be made to adopt those processes/materials/etc.

What advice would you give to students who are considering majoring in Biomedical Engineering?

My bachelor’s degree in biomedical engineering at OSU prepared me for a higher degree in materials engineering at Purdue. I would advise students in BME at OSU to open their minds to pursuing work in other fields that they are exposed to as part of the undergraduate curriculum. I have many friends who went on to medical school, graduate school, and even work in the field outside of biomedical engineering – it is a major that can prepare you for many different career paths. I would also strongly consider taking the time to engage in a co-op or internship program as getting that experience prior to working in the field will be crucial to them after they graduate.