Name: Sarah
Age: 19
Residence: Ann Arbor, MI
Job: BME Sophomore at the University of Michigan; Part-time research

Background

Sarah is 19 years old and is partway through her sophomore year in biomedical engineering at the University of Michigan. She hopes to one day become a physician, although recently she's started considering sticking with engineering instead of pre-med. She feels more comfortable at college than her freshman year and has a core group of friends that she can study with. During her first semester of sophomore year, she's still deep in her pre-reqs, taking physics I and its lab, calc 3, and an intro material science course. Last year as a freshman she only took pre-reqs, including orgo, calc 1 & 2, and one of her intellectual breadth courses. Her most beneficial courses where she learned engineering material were ENGIN 100 and 101. She enjoyed programming in MATLAB (not as much for C++), but didn't feel particularly confident with it and isn't sure if she'll take another class that requires extensive coding. For 100, she enjoyed her class, but she was in section 100 (one of the BME sections), so she didn't get hands-on building experience but instead just did an online research project. She was hoping this year she'd get more engineering experience, especially when talking to her friends in ME and EE who already have program-specific courses. Looking at her second semester of sophomore year, she still has mostly science and pre-req courses to take, including physics II and its lab, biochem (she tested out of biology using AP Bio), and calc 4. She's excited for intro to biomechanics and has heard Joan Greve is great.

In her time outside of classes, Sarah is just getting involved with research in a basic science lab in molecular and cellular biology. She is excited to get hands-on skills and has heard it's important for her to try research if she's interested in applying to medical school. She's doing the research on a volunteer basis at first but hopes to turn it into work-study for about 10 hours a week. She also is involved in a volunteering student organization focused on public health.

Motivations & Frustrations

Sarah chose biomedical engineering as a pre-medicine degree. She wants to get sound technical skills to better understand medical devices and products she may one day use as a physician, and she'd like to be able to identify problems and potential solutions for clinical tools she uses in the future. As a pre-med student, she knows she needs to study hard and goes to office hours frequently to stay on top of her classes. Like many underclassmen, she has started having doubts about if she wants to commit to medical school and is glad she chose BME for her undergrad because she thinks she'll at least be able to be employable in engineering if she changes her mind. For her classes, she hasn't had much choice in what she takes since she is bogged down with pre-requisites, especially with all the science courses required for BME. She wishes that she could take more technical electives and get hands-on skills right away like her sophomore friends in other majors, especially after going to the career fair and discovering how even healthcare companies like GE Healthcare explicitly say they do not take BME's, but she can't find a way to. Any hands-on classes (BME 241) don't start til next year because she needs to take circuits, thermo, and biomechanics as pre-requisites. She also has a hard time expressing her advantage over other engineering majors because she doesn't yet have a better understanding of medicine or physiology; all of her classes thus far (and planned for next year) are basic science courses including orgo, biology, and biochem, without any direct applications to healthcare. She wishes that there was a physiology class earlier on so that she could talk about this with recruiters as an added benefit of her BME experience.

She's excited by the classes she's going to get to take; everything having a medical focus really interests her. She's heard from some of her BME upperclassmen friends from her student org that she should consider switching majors if she wants to get an engineering internship, but she's still up in the air on if she wants to do medicine or engineering and doesn't know exactly which major she'd want to switch to anyway, so BME still seems like the right fit. She thinks if she works hard she can get an internship, but she later finds out that they were right; it's very challenging to get an internship after your sophomore or junior year in BME.

Their Ideal Experience

Sarah wants to come out of BME knowing how to solve medical problems with engineering. She thinks she can do this by knowing how to build things, having experience with engineering software (like CAD), and having a sound background in anatomy and physiology. She's heard that many of the classes in BME are theoretical and not very relevant if she wants to get an engineering internship (or even full-time job) in industry, with only a small handful of hands-on technical courses with projects that she can list on her resume. She wants to get this hands-on experience to talk to recruiters about, and she wants to have an advantage over other engineering majors for healthcare companies because of her better understanding of physiology and medicine. As a student on the fence about pre-med, having only a theoretical understanding of BME might be fine, but she still wants to get an internship to see if she likes engineering work.

Quote

"BME seems like such an interesting field, and I really enjoy the idea of applying engineering to healthcare problems. The curriculum has surprised me a bit; I wasn't expecting so many pre-req's before I even get to my BME courses. My first BME course will be almost halfway through my time at college, and I wish I had the opportunity to get started earlier."