I worked for a pharmaceutical company of Johnson & Johnson called Centocor R&D, Inc. in Radnor, PA. Within the company I worked in the Formulation Technology and Development team. This team is primarily responsible for developing a stable and deliverable form of a given drug. The major project I worked on during my time here was developing automated sample preparations on a liquid handler. The first few weeks I primarily focused on familiarizing myself with the robot’s operating language and calibrating the robot to pipet accurate volumes of liquid across four pipet sizes. In the middle of my term, my focus shifted to developing a method for diluting protein samples so that future sample preparation methods could branch off of this standardized output. Later in the work term, I built upon my previous work to develop a standardized sample preparation method for an assay commonly used by the team.

There was a short online orientation at the beginning of the term that provided me with some information about how to get set up in the company. I also received a new employee manual that provided me with critical information about entering time, setting up my computer, etc. I was assigned a supervisor, with whom I worked closely throughout the term. I also worked with a few other people from the formulation team, and felt very comfortable approaching any of them with questions.

The problem solving and analytical skills I developed through the chemical engineering curriculum helped me immensely during my co-op term. Although most of my coursework was not directly related to the work I did, I frequently applied the underlying themes of courses,
such as heat and mass transfer, thermodynamics, and fluid dynamics, to my work. Not only did I
gain technical skills in my position, but I also learned about how science integrates with
business at even the bench level.

Finding housing in the area of Radnor, PA was quite hard. There were hardly any other
coops during the fall term so there was no opportunity to room with someone from the
company. I stayed in a nearby town as a paying guest, and the commute to work (without
traffic) was a short twenty minutes. I’d recommend looking for housing as early as possible. In
terms of transportation, I’d recommend having a car. There is, however, a train station quite
close to the Radnor facility that some people use to commute. There are quite a few historical
landmarks in Philadelphia and the surrounding area which I visited on weekends. I also spent
some of my weekends visiting friends in DC, Philadelphia, and back in Ithaca. My weekend trips
stopped near the end of my term since the weather no longer permitted long drives.

Overall, my co-op at Centocor R&D has been a great experience. I’d recommend it to
anyone interested in the field of pharmaceutical sciences or biotechnology.
I worked for a pharmaceutical company of Johnson & Johnson called Centocor R&D in Radnor, PA. I worked in the Drug Delivery and Device Development department within the company. The primary goal of this team is to develop technologies that are used in the administration of a drug to a patient. During my summer here, I worked primarily with the idea of using alternative vehicles for delivery. My focus was primarily on purity analysis of biologics at the beginning of my term. Towards the end of my term, my focus shifted to the idea of injectibility of a drug, and the various properties that influence this.

Since I had worked at this site during my fall term, there wasn’t a lot of orientation that I needed to get started with my work right away. I was familiar with the process of entering time, managing trainings, and other orientation details. I was assigned to a supervisor with whom I worked very closely over my term. There was another co-op who was a Ph.D. student with whom I also collaborated with. In addition to my new team, I also kept in touch with all the people from my old group in the fall, since I was located at the same site. Everyone was very friendly and I felt very comfortable approaching anyone with questions.

The set of skills that I developed and honed during this co-op term were quite beneficial. I applied some concepts from the chemical engineering curriculum, and also learned the applications of chemical engineering to drug delivery.
Finding housing in the area of Radnor, PA was much easier than it was during my fall term. Although I stayed as a paying guest in a nearby town, the dorms at Villanova University were open to students that were interning in the area. I would highly recommend having a car. There is, however, a train station within walking distance from the Radnor site that many people use to commute. In addition to sites in Philadelphia, I visited friends in nearby places (DC, New York, New Jersey, Ithaca) on the weekends.

Overall, my co-op at Centocor has been a great experience. I’d recommend this to anyone interested in the field of pharmaceutical sciences or biotechnology.
Willie Sze
Net ID: ws254
Major: Biological Engineering
Employer: Centocor
Term: 1 and 2 (Combined Spring and Summer terms)

Centocor is a subsidiary of Johnson & Johnson working to develop drug treatments for various diseases such as cancers, immune-mediated inflammatory diseases, and other chronic conditions. The group that I worked with is part of the large molecule methods development group. Their primary role is to develop, qualify, and validate various analytical methods for the different antibodies that are developed as drug treatments. After an antibody is discovered and identified as an active pharmaceutical ingredient, analytical methods are developed concurrently with ongoing clinic trials in order to assess the purity, stability, and other characteristics of the drug throughout its development.

During my time working at Centocor, I trained mainly on the capillary SDS method, a way to separate proteins based on molecular weight. I helped my supervisor with the validation of a method and investigations performed for that project. Several months in, I was given the project of method re-development and qualification for the same drug, in order to improve on issues encountered during validation. I also wrote up a report for the company documenting the work I did for this project.

Many of the trainings provided by the company came in the form of reading the many documents they had pertaining to safety guidelines and standardized procedures practiced by the company. There were also some training offered as interactive online activities and instructor-led classes. Training on the analytical capillary SDS method required shadowing, supervised hands-on practice, and demonstration of the ability to independently perform the assay.

I did not have an assigned mentor; however I was given the freedom to ask for one. Generally, I approached my supervisor with questions, as he encouraged me to ask him for help if I needed it. If he was not available, I would tend to ask my officemate questions, as she was very knowledgeable and also very open to answering questions I had.

Most of the work I performed was under the field of analytical biology/chemistry, and was not directly related to engineering. However, the drug development process as a whole does include biological engineering roles. Throughout the co-op term, I have gained a better understanding of the various phases of the drug production process. Additionally, I have gained an understanding of the hierarchical structure of large companies and of what to expect in an industrial working environment.

This position has given me a better idea of the many options I have when choosing a career path and has solidified my decision in continuing in a field related to medicine. I believe that I have a better understanding of what I am looking for in a career, that is, what is most important to me in a job. In terms of personal development, I believed that I have matured, at least a little. My coworkers were all very mature and professional. From their actions and conversations, I was introduced to new mindsets that I would not have otherwise considered and I believe I have learned how to better interact with others on a professional level. If I were to go through the same experience again, I
would like to take two co-op terms instead of just one. Although it was nice that I was able to accomplish more in a longer time, I realized I would have liked to experience working under different groups in the company.

During my co-op, I was able to stay at a relative’s place because it was closer to my workplace than my parents’ house. To a future co-op, I would suggest finding out if there are relatives near his/her co-op that would allow him/her to rent out one of their rooms during the co-op term, as this is an easier and cheaper alternative to renting one’s own apartment. Otherwise, I would suggest that if there are colleges near the co-op, it would probably be a good idea to sublet or rent a place by the college, as those apartments tend to be already furnished. Transportation-wise, having your own car is the best, unless you live in the city. In terms of social activities, I would suggest pursuing a hobby, such as martial arts or dancing, or maybe joining a volunteer organization, if there are no friends or family nearby. Joining coworkers after work for some activity can also be enjoyable and is also a great time to network outside of the working environment. The company did offer opportunities to join their athletic teams and their on-site gym; however, I pursued neither of these.

The best features of this job were my coworkers. Everyone was nice and extremely helpful, always willing to offer guidance or answer questions. Additionally, the work environment there was nice. Even if a project was rushing to be finished, the environment itself gave off a peaceful atmosphere that made it an enjoyable place to work. The worst feature of this job was that my group was located on a separate campus from most of the other drug development groups. Therefore, it was somewhat secluded and hard to interact with others outside of the immediate group. In that kind of environment, it is easy to simply work on your own project and lose sight of the bigger picture.