



Sloan Career Cornerstone Center

Profiles of Chemical Engineers



Paul Magreta

**Process Development Engineer
Genentech
San Francisco, CA**

Education:

B.S.E. - Chemical Engineering, University of Michigan

Job Description:

Process development engineer

Advice to Students:

"Getting my first job was difficult. However, I would say that what helped me most was my past experience. I had some experience while an undergrad working in a lab for a professor."

Video Transcript 1:

"A process development engineer is someone who is working with the process and trying to take a certain cell culture or bacterial process that is producing a recombinant protein and move that from a small scale to a process that can be run in a full scale manufacturing facility. Because I'm in process development most of my work is involved with small scale experiments, looking at various process conditions to try and optimize full product yield as well as any product quality issues that we might be concerned with at the time."

Video Transcript 2:

"Through persistence and some of the contacts that I had made as an undergrad working in the lab with some of the graduate students at the time, I was able to get a few interviews, and one of those interviews then led on to a permanent position."

Interview:

Magreta: My name is Paul Magreta. I'm a process development engineer and I work at Genentech in South San Francisco.

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Q: What does a process development engineer do?

Magreta: A process development engineer is someone who works with the process and tries to take a certain cell culture or bacterial process that is producing a recombinant protein, and moves that from a small-scale to a process that can be run in a full-scale manufacturing facility.

Q: How does a chemical engineer fit into process development?

Magreta: A chemical engineer fits into the field of biotechnology by bringing some of the chemical engineering tools to a field that is dominated mostly by biologists, molecular biologists, and chemists. However, to produce these proteins in a full-scale manufacturing facility takes a lot of process knowledge.

Q: What is a typical day like for you?

Magreta: Because I'm in process development, most of my work is involved with small-scale experiments-looking at various process conditions to try and optimize full product yield, as well as any product quality issues that we might be concerned with at the time. So a typical day would consist of both running small-scale experiments as well as analyzing the data from those small-scale experiments.

Q: What college courses have helped you out in your daily work?

Magreta: As an undergrad in chemical engineering, I took the standard chemical engineering courses. However, while an undergrad, I began working in one of the professor's laboratories who was working in the field of biotechnology-studying bone marrow cell replication outside of the body. That started my interest in the field of biotechnology. Subsequent to that, I began to take biochemistry, biology, and immunology courses. Those three have definitely helped, because in the field of biotechnology-although there are definite aspects of chemical engineering-it's essential to have an understanding of biology, as well as chemistry, so that you have a feel for what the organisms are that you're working with, what they're capable of, and where you can start to manipulate these organisms to achieve any desired end.

Q: What helped you get your first job?

Magreta: Getting my first job was difficult. However, I would say that what helped me most was my past experience. I had some experience while an undergrad working in a lab for a professor. That little bit of experience-although my duties there were relatively simple, general laboratory tasks-was a bit of an exposure, as well as a time that I could learn quite a bit. That experience helped after I graduated. After I graduated, I spent four to six months searching for a job-I was being selective in the position that I was hoping to get. From my previous experience as an undergrad, I knew I wanted to work in biotechnology, and that greatly limited the possibilities that were open to me after graduating. However, through persistence and some of the contacts that I had made as an undergrad working in the lab with some of the graduate students at the time, I was able to get a few interviews, and one of those interviews then led on to a permanent position.

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Q: What is the most satisfying part of your job?

Magreta: The most satisfying part of my job is knowing that on a daily basis, regardless of how mundane the task might be, ultimately we are working for something that I view as good and beneficial and that will have an impact on people's lives in a positive, if not lifesaving, way. That is, I think, what drives both myself, as well as most of the people here at Gene ntech.

Q: Are there frustrating parts?

Magreta: The greatest source of frustration would be the frazzled pace with which we sometimes work. It's definitely a high-energy atmosphere, and sometimes that high energy can bog you down as there are just too many things going on.

Q: How do you handle the frustration?

Magreta: The best way which I found to diffuse it is by setting priorities. It comes down to knowing what's most important and taking care of those things, as well as an ability to establish priorities and set other things aside.

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