Roadmap to Research **Aaron Rowe**

For Freshman Students **Graduate Student, Biochemistry, UCSB**

Getting into graduate school or finding a research job can be quite competitive. If you want to get ahead of your peers, you should consider doing some undergraduate research. There are two main ways to do this. You can talk to a professor here and commit to working in their lab for a couple of years, or you can apply for a summer research program here or at another university.

Summer research programs generally accept students after their second or third year of college, and they pay several thousand dollars for you to work on a project five days a week, eight hours a day, for ten weeks. If you pick a laboratory that uses common scientific methods, you will have a lot of skills by the end of the summer and thus be very attractive to graduate programs and employers.

Most summer research programs require that you apply by around February 1st of your sophomore or junior year, and they ask for two letters of recommendation from professors that you have taken classes from. For that reason, it is a good idea that you speak up in class so that your teachers will remember you and be able to write a good letter.

About half of all summer science opportunities are called REU programs. That stands for Research Experience for Undergraduates. Every school that offers an REU program has a different theme. The theme could be genetics, physics, tissue engineering, environmental science, or any number of highly specialized fields. You can look at a comprehensive list of these programs here.

http://www.nsf.gov/crssprgm/reu/reu_search.cfm

Some REU programs allow you to conduct research in another country. This means that you would be working in a laboratory in Taiwan, Brazil, or elsewhere for the whole summer.

There are other programs that will offer you the same experience as an REU program with other names like SURF, which stands for Summer Undergraduate Research Fellowship. You can do a google search to find them, because there is no comprehensive list. National laboratories also offer fantastic summer programs.

Summer internships are also a good idea, but they can be quite hard to find. If you apply to several REU programs, there is a very good chance that you will get in.

Department Seminars

In addition to doing summer research, it would be a very good idea if you attend several research talks given by visiting professors. Almost every department at UCSB has several guests come and give a one hour talk about their research. You are welcome to attend and you should probably see a couple of them before you graduate. The talks may be hard to understand, but like learning a foreign language, if you immerse yourself in a subject you will learn the vocabulary very quickly. Yet another reason to do this is so that you can figure out what kind of research you find most exciting.

Reading

At this stage in your education, it would be very good if you try to stay aware of hot research topics by reading popular science magazines and websites regularly. Perhaps the best magazine to read is Science News because it provides short and easy to understand descriptions of exciting new science. You may also want to consider regularly visiting the website slashdot, which is a message board where people link to cutting edge science and technology articles. Slashdot has a heavy bent towards computer science and electrical engineering, but covers other areas as well. Chemical and engineering news will not only help you learn where the frontiers of chemical research are, but also it will give you a better understanding of the chemical and pharmaceutical industry. Wired, New Scientist, Discover, and Scientific American magazines all provide well written articles about hot topics in science. Scientific American is particularly good because many of the articles are written by researchers that are experts in the field that they are writing about.

http://sciencenews.org/
http://slashdot.org
http://pubs.acs.org/cen
http://www.wired.com
http://www.newscientist.com
http://www.discover.com
http://www.sciam.com

Science Podcasts and Radio

If you have iTunes installed on your computer, you can find a lot of science podcasts. This includes the show Science Friday which is produced by National Public radio. It would be a great thing to download and listen to while driving home on the weekend, working out at the gym, or whenever you usually have a radio on.