

TIPS FOR A SUCCESSFUL UNDERGRADUATE RESEARCH EXPERIENCE

Research is exciting!

Join a research laboratory as soon as possible: DO NOT wait until your senior year!

You are tackling the unknown, trying to discover the basis for life and finding cures for ailments. Below are recommended procedures for success during your research rotations. We can define success as a real learning experience with tangible results (growth as scientists, scientific publications, good letters of recommendation). As undergraduate students, you should take the initiative in implementing these procedures:

1) Know the broad aims of the laboratory: Learn through readings and discussions with your mentor and laboratory members what is being studied in the laboratory.

2) Know the specific aims of your individual project: You will be given an individual project, sometimes as part of a team. Learn through readings and discussions with your mentor and laboratory members the goals of your project and how it fits in the overall aims of the laboratory.

3) Understand the purpose of each experiment you do and the implications behind your results: Do not do experiments blindly. Technical skills are usually easy to achieve. You need to gain a deeper understanding of the reasons for doing an experiment and to develop the analytical skills to interpret its results.

4) Keep updated on the scientific literature: This is your responsibility. Read relevant literature related to your project, those from your own and from other laboratories. Do regular searches for new literature on your topic, at least once a week. Scientific papers are not easy to read! Do the best you can and learn more through discussions with your mentor and laboratory members.

5) Interact with other members of the laboratory and learn about what they are doing: Once in a laboratory, you have joined a group of scientists. Learn what other laboratory members are doing, even if it is seemingly unrelated to your project.

6) Achieve some independence: As you gain more skills, one of the goals of your research rotation is to interpret your results and propose future avenues of exploration. "This result suggests.... and we should look next at...". You will likely be wrong some/most of the time but your mentors will not hold it against you. On the contrary, they will be excited by your interest and will help you formulate better plans.

7) Be committed: A successful research project depends on your energy and hard work. Very few projects are without hiccups, and your dedication is essential for pushing through them. Success will be well worth your efforts.

8) Ask questions: You will need to learn a great deal during your research project. Don't be afraid to ask questions of your colleagues: students, postdoctoral scientists, and faculty.

Once you join laboratories, your mentors have made a commitment to enhance your growth as scientists. The "payback" for them is your commitment to your research project. Genuine interest and effort on your part will result in more direct involvement of your mentors in your growth and help with planning for future careers.