August 2016

UNDERGRADUATE RESEARCH IN 91 AND 99 FOR CPB AND MCB CONCENTRATORS

These guidelines are intended to complement the information in the Student Handbook for Undergraduates in Life Sciences Research. Please read both before enrolling in 91 or 99.

1. Experience in a research laboratory can be very rewarding or very frustrating and usually is a mixture of both. **In most cases, students who complete a thesis find it one of their most rewarding and creative undergraduate academic experiences**. Research training in the experimental sciences is essentially a period of apprenticeship. Both graduate school and medical school programs consider the successful accomplishment of a thesis to indicate strong potential for future achievements. The relationship between the student and the research sponsor is vital, and it is important to take research opportunities seriously and to get good advice **before** seeking a sponsor. The Undergraduate Research Coordinator, Dr. Anna Babakhanyan, is available to help you locate a suitable laboratory and funding. Your Tutor in Biochemical Sciences, as well as the concentration advisor, are also crucial sources of information about **general directions** that might interest you, about **specific laboratories** that might have an opening, and about **when and how** to integrate research into your undergraduate program. Each of these issues needs careful thought. Not all laboratories provide equally effective training for undergraduates, not all projects are suitable for inexperienced students, and not all topics qualify for credit in Biochemical Sciences/CPB/MCB. Moreover, a certain amount of formal course background is essential before getting involved in a research project.

2. After you have discussed possible laboratories to contact with your tutor, the Undergraduate Research Coordinator, and/or your concentration advisor, remember to give plenty of time and careful attention to the effort of finding a good opportunity. Students typically start the process of finding a laboratory opportunity one semester before they begin doing research. Do not expect to leave a casual phone or e-mail message and get a response. The Research Handbook has lots of great advice regarding finding a research sponsor and how to contact them. Laboratories in the Longwood Medical Area offer a rich set of possibilities, but **seeking advice is especially important before you make a definite commitment.**

3. It is a privilege, not an automatic "right", to gain admittance to a research laboratory. Considerable time and effort of laboratory personnel, as well as of the faculty member in charge, must be devoted to instructing new members of a research group, and to maintaining the facilities of the laboratory. Moreover, in times of tight federal funding for research, commitment of resources to a student project means giving up some other research option. Therefore, it is reasonable to expect a conscientious performance from a student. It is the student's responsibility to maintain contact with the sponsor, and also to discuss fully **any anticipated changes** to the agreed-upon schedule. If problems or conflicts should arise, please discuss them with me immediately. It's almost always easier to resolve issues soon after they arise and before they become real problems. Please keep the following obligations clearly in mind:

    A. You should appear regularly and dependably in the laboratory.

    B. You should notify your sponsor promptly if you are unable to attend a planned session. Rarely can students inexperienced in research methods carry out experiments entirely on their own.

    C. **It is not appropriate to show up in the laboratory mainly at night or on an irregular schedule**. The frustration of preparing an experiment or reserving use of some equipment, only to have a student not turn up or leave early, is intense, and the waste of research resources is significant.

4. Properly planned and thoughtfully regarded, 91r and 99 will provide some of the most inspiring, challenging, and stimulating scientific instruction you will receive at Harvard.

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