Undergraduate Research in Biochemistry & Molecular Biology (BMB)

Guidelines and Expectations for both Students and Research Mentors
in BMB Faculty Labs or in Outside Labs
(BB 191/192, 291/292, 391/392, 491/492, or 401/402)

Responsibilities of the Student:

Application: The online application for Undergraduate Research should be filled out with the help of your research mentor (and BMB faculty sponsor if applicable). Your research mentor (and sponsor, if applicable) must electronically approve your submitted application. After review and approval by the BMB Research and Honors Committee, you will be registered for the research course indicated in your application and you will receive an email confirmation. Applications for Honors in BMB (BB 401/402 & BB 497/498) require a different application form available for download on the BMB forms webpage.

Research: Research projects must involve laboratory, molecular-based research appropriate to the BMB degree. During the fall or spring semester, you are expected to devote a minimum of three (3) hours/week per credit to the project. During the summer 1 or summer 2 terms, you are expected to devote a minimum of eight (8) hours/week per credit. Please note: you are not permitted to be paid (e.g., through UROP) and receive academic credit at the same time.

BMB Faculty Mentor/Sponsor: To find a BMB faculty research mentor, you can review and contact faculty listed on the BMB website, ask your assigned academic advisor for suggestions, or talk with TFs in your courses. If you find a research mentor in an outside lab, you and your mentor must identify a BMB faculty member with related research interests to serve as your sponsor and liaison between the BMB Program and your outside mentor. You are expected to meet with your research mentor on a regular basis throughout the semester (at least once a week). If you have a BMB sponsor, you should meet with him/her regularly as well (at least 2-3 times during the semester). In these meetings, you will discuss your research progress and any issues or questions that you may have regarding your research experience.

Grading: Your research mentor (and sponsor, if applicable) should outline the grading requirements with you before the semester starts. At the end of the semester, your BMB faculty mentor/sponsor will assign your grade (if working in an outside lab, your BMB sponsor will consult your outside research mentor before assigning the grade).

Responsibilities of the BMB Faculty Member (as research mentor or sponsor):

A. Your responsibilities as a research mentor include the following:

1. After agreeing to provide time and space in your laboratory, you should meet with the student prior to submitting the application to discuss your expectations for doing Undergraduate Research in your laboratory. This discussion includes making it clear that the student must be an intellectually engaged contributor to the research project and not simply perform the tasks of a work-study student or a technician. In addition, be sure the student understands all of his/her responsibilities for completing the application and devoting sufficient time each week to the research (Fall/Spring semester: minimum of 3 hours/week per credit; Summer term: minimum of 8 hours/week per credit). You should also establish any grading requirements before each
semester. As a research mentor, you and the student should have frequent individual discussions regarding the research project(s) (at least once a week).

2. Explain to the student that he/she cannot receive financial funds (e.g., paid internship, research assistance, UROP) and degree credit at the same time while performing Undergraduate Research.

3. Work with the student to complete the online application for Undergraduate Research. The application should be a well-cited scholarly proposal that includes a brief background, the hypothesis(es) being tested, a brief description of the experimental plan, any other relevant features of the project, and a list of cited sources (see online application for examples). The application should be written in the student’s own hand (not a copy of your recent grant proposal), and should end with an annotated list of references for the entire research proposal (i.e., not just a bibliography).

4. Once the student has submitted the proposal online, you will get an email containing the submitted proposal and a link to an approval/resubmit page. Review the submission, and on the website, either suggest edits or electronically approve the student’s application. This all needs to be done in time for the student to register for the course. Applications for Honors in BMB (BB 401/402 & BB 497/498) require a different application form and your signature on paper. The Honors application may be found on the BMB forms webpage.

B. Your responsibilities as a sponsor include the following:

1. After agreeing to sponsor a student to perform research outside of a BMB faculty lab, you should meet with the student prior to submitting the application to discuss your expectations for doing Undergraduate Research, including these guidelines. This includes making it clear that the student must be an intellectually engaged contributor to the research project and not simply perform the tasks of a work-study student or a technician. In addition, be sure the student understands all of his/her responsibilities for completing the application and devoting sufficient time each week to the research (Fall/Spring semester: minimum of 3 hours/week per credit; Summer term: minimum of 8 hours/week per credit). As a research sponsor, you should periodically have discussions with the outside mentor during the semester.

2. Explain to the student that he/she cannot receive financial funds (e.g., paid internship, research assistance, UROP) and degree credit at the same time while performing Undergraduate Research.

3. Electronically approve the student’s application in time for the student to register for the course. Applications for Honors in BMB (BB 401/402 & BB 497/498) require a different application form and your signature on paper. The Honors application may be found on the BMB forms webpage.

4. Communicate with the outside mentor to verify that he/she understands the expectations for the student and the requirements for receiving BU credit, particularly with respect to the typical workload of a 2– or 4–credit course. It is important to emphasize that our undergraduates should not be expected to contribute time and effort equivalent to a graduate student, nor should they be left to simply perform technical tasks without active mentorship. This responsibility is particularly important in situations in which the research mentor may not be familiar with the needs of students on an undergraduate campus or has not had previous experience mentoring undergraduates in research.
5. Develop a plan with the outside mentor for determining the student’s final grade. The grading mechanism is flexible, but should be agreed upon by both the mentor and the sponsor prior to or shortly after the start of the semester. The BMB sponsor then informs the student of the grading requirements in an email that is copied to the outside mentor so that there is no ambiguity regarding the expectations of the student. The BMB sponsor must contact the outside mentor at the end of the semester to determine the student’s grade. The research mentor generally suggests a grade, but may consult with the faculty sponsor if so desired. An unusual grade (B- or lower) should be discussed with the outside mentor to confirm that the grading standards being used are compatible with standards for undergraduates doing research in BMB faculty labs and the predetermined grading requirements set out at the beginning of the semester.

6. Meet periodically (at least 2-3 times a semester) with the student to discuss progress and any problems that might be encountered. Discuss any issues, should there be any, with the outside mentor and (if necessary) the BMB Research and Honors Chair (Dr. Tolan).

Responsibilities of the Outside Research Mentor (if applicable):

1. Work with the student to complete the online application for Undergraduate Research. The application should be a well-cited scholarly proposal that includes a brief background, the hypothesis(es) being tested, a brief description of the experimental plan, any other relevant features of the project, and a list of cited sources (see online application for examples). The application should be written in the student’s own hand (not a copy of your recent grant proposal), and should end with an annotated list of references for the entire research proposal (i.e., not just a bibliography).

2. Electronically approve the student’s application in time for the student to register for the course. Applications for Honors in BMB (BB 401/402 & BB 497/498) require a different application form and your signature on paper. The Honors application may be found on the BMB forms webpage.

3. Communicate with the BMB faculty sponsor on the BU Charles River Campus (see items B-4 and B-5 of “Responsibilities of the BMB Faculty Member”).

4. Meet regularly (e.g., at least once a week) with the student to review progress, troubleshoot problems, plan additional research efforts and provide mentorship on keeping a notebook, data analysis, and writing.

5. Contact the BMB faculty sponsor prior to the end of the semester to discuss the student’s grade, which will be submitted to BU by the BMB faculty sponsor.