MBB 491 provides students with the opportunity to carry out part time research in a molecular biology/biochemistry laboratory. The end result will be a report and an oral presentation.

Prerequisites: MBB 308 or MBB 309W and permission of the MBB department. Upper level standing in an MBB major, minor or honours program is required.

MBB 491-5 may be taken by MBB majors as a stand-alone course or as the first of two courses, MBB 491-5/MBB 492-10, for Option B of the honours thesis. Students wishing to take MBB 492-10 following MBB 491 may do so provided they meet the MBB 492 prerequisites. Typically both courses are done on the same research project with the same supervisor.

Note that students cannot hold an NSERC or VPR USRA while taking MBB 491.

❑ Find a faculty member willing to supervise you in this course.
❑ In consultation with your supervisor, fill out the Letter of Intent (LOI) form (next page) describing the research goal(s) and outlining possible experiments for your proposed project.
❑ Sign this cover page and obtain a signature from your supervisor.
❑ Submit the signed cover page, LOI and a copy of your advising transcript to the MBB office. You will be registered for these courses once the application has been approved by the Chair of the MBB Departmental Undergraduate Curriculum Committee (DUCC).

By signing this form you indicate that you approve of the LOI and agree to serve as supervisor. This entails providing guidance to the student with respect to the research project (including preparation of the LOI, research proposal and final report) training and educating the student, providing feedback on their writing and performance and a final grade for the course. Students should complete their laboratory work by the last day of classes. Their oral presentation may occur at this time or during the final exam period. In some cases, when the supervisor is unavailable, the oral presentation may be deferred until the first week of classes for the following semester, but this should be established before the application is finalized.

† or email confirmation to the student, the supervisor, the MBB Undergraduate Program Assistant (mbbugrad@sfu.ca) and the DUCC Chair (mbb_ducc@sfu.ca)

Revised: August 20, 2020
MBB 491 Letter of Intent

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<th><strong>Background (Why is this research important?)</strong></th>
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<th><strong>Research Question (What question are you trying to answer?)</strong></th>
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<th><strong>Scientific approach (How will you attempt to answer this question?)</strong></th>
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Resize sections as needed within a single page. Use 11 pt font size.

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MBB 491 detailed instructions and course guidelines

Registration in MBB 491: In the semester preceding your Directed Research semester you will find a supervisor who is an MBB faculty member, MBB associate or adjunct faculty member. The supervisor may be a member of another department pending approval by the MBB DUCC Chair. Your prospective supervisor will suggest ideas for your research project and help you to prepare a Letter of Intent (LOI) using the form provided. The LOI is a brief description of the background for the project, the question you are planning to address and the methods you will use to try to answer this question. Submit the signed application form, LOI and transcripts to the MBB office, ideally by the last day of exams of the preceding semester, for approval by the DUCC Chair. Once your application is approved you will be registered in this course.

Course plan: Your supervisor will outline expectations regarding lab work. Typically, a 5 unit Directed Research course means working one-third of full-time in the lab on your project (i.e. 11-13 hours per week). You should keep a careful record of your experimental work. You will likely attend lab meetings at which you may be asked to present your plan and progress. Your lab performance will constitute 40% of your final grade for MBB 491. Students working in a research lab are required to take the lab facilities tour and the complete set of SFU safety workshops; these are typically scheduled in the second week of each semester.

Research proposal: In consultation with your supervisor, prepare a research proposal describing background information, the research question, your hypothesis, the specific aims to test the hypothesis, the scientific approach and the expected outcome (maximum of 5 pages of double-spaced text, plus figures and references). It may be helpful to include an approximate timeline of experimental goals through the semester. Sample proposals are available in the MBB office. The proposal should be completed by the end of the second week of classes and emailed to mbbugrad@sfu.ca. The proposal does not count toward your grade for the course.

Final report: Lab work should be completed by the last day of classes but you may begin at any time during the semester to write your report starting with the background. The report builds on your Research Proposal and is typically organized as Abstract, Introduction (including hypothesis and aims), Methods, Results and Discussion/Conclusions. The grade for the report will constitute 30% of your mark for MBB 491.

MBB honours students: The report you prepare for MBB 491 may form the basis of your proposal for MBB 492.

Oral presentation: At the end of the semester or during the exam period, you will give a 30 minute talk on your research to your lab members. This talk will usually follow the outline of your report (introduction, results, discussion etc.). This will be followed by questions from your supervisor and lab members. Your performance in this oral defense will constitute 30% of your mark for MBB 491.

Summary of grade distribution: lab performance, 40%; final report, 30%; oral presentation, 30%.

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