The Directed Research courses provide students with the opportunity to carry out full time laboratory research in molecular biology and biochemistry. The end result will be the writing of an Honours thesis and an oral defense. Students will submit a research proposal at the end of the second week of classes, for which they will receive feedback from the committee members, and they will submit a final Honours thesis near the end of the semester. The grade for MBB 481-5 will be based on the thesis and will reflect the quality of the writing, the demonstration of an understanding of the research project and the ability to clearly document research results. The grade for MBB 482-5 encompasses the research performance component of the Directed Research courses. This grade will take into consideration the quality of the research, the motivation of the student and the general intellectual involvement in the project. The grade for MBB 483-5 will reflect the quality of the oral presentation, the demonstration of an understanding of the research project and the ability to clearly describe research results and answer questions.

Prerequisite: MBB 308, MBB 309W and MBB 331, enrollment in the MBB or Biological Physics Honours Program, a minimum of 3.0 cGPA and 3.0 uGPA and permission of the MBB department.

- Attach a copy of your advising transcript to this form before seeing the instructor.
- Find a faculty member willing to supervise you in this course.
- You and your supervisor will also need to recruit two other faculty members to serve on a committee, which will determine your grade in the course. At least one member of the committee must be an MBB faculty member.
- In consultation with your supervisor, prepare a one page Letter of Intent (LOI) describing the goal(s) and outlining possible experiments for your proposed research project. Use the fillable form provided. Your committee must read and approve this document and sign this form.
- You will be registered for this course once the LOI and signed form have been received and approved by the MBB chair of the Departmental Undergraduate Curriculum Committee (DUCC).

Note that students cannot hold an NSERC or VPR USRA or take an additional course while taking MBB 481/2/3.

Student: ____________________________ (print and sign name)

Student Number: ____________________ E-mail address: __________________________

Faculty Supervisor: ____________________________ (print and sign name)

Committee member: ____________________________ (print and sign name)

Committee member: ____________________________ (print and sign name)

Committee members: By signing this form you indicate that you approve of the LOI and agree to serve as a committee member. This entails providing feedback on the proposal, evaluating the thesis as well as participating in and grading the oral defense.

DUCC Chair __________________________________ Date: ___________

Revised: May 30, 2019
Background (Why is this research important?)

Research Question (What question are you trying to answer?)

Scientific approach (How will you attempt to answer this question?)

Resize sections as needed within a single page. Use 12 pt font size.

Revised: May 30, 2019
In the semester preceding your Directed Research semester: You will need to find a supervisor willing to supervise you. The supervisor can be an MBB faculty member, MBB associate or adjunct faculty member, or a member of another department pending approval by the MBB departmental undergraduate curriculum committee (DUCC). The sooner you arrange this, the more options are available to you, as labs do fill up. You and your supervisor will also need to recruit two other faculty members, to serve on a committee, which will determine your grade in the course. At least one member of the committee should be an MBB faculty member. You should get extensive feedback from your prospective supervisor re: options for, and the scope of particular research projects in the lab. In consultation with your supervisor you should prepare a one page Letter of Intent (LOI) describing the goal(s) and outlining possible experiments for your proposed research project. Email your LOI to your committee members, who must read and approve this document before you submit it to the MBB office by the last day of exams of the preceding semester. You should hand in the approval form with signatures and your LOI to the MBB office for approval by the Chair of the MBB DUCC. Keep a copy of this sheet for your reference. Once your LOI is approved, you will be registered in these courses.

Before you begin your Directed Research semester: Your supervisor will outline expectations regarding lab work. Typically, a 15 credit DR course means working full-time on your project (35-40 hours per week); 5 or 10 credits proportionately less. You should keep a good record of your experimental work, and you will likely attend lab meetings at which you may be asked to present your work and progress. Your grade for MBB 482 will be based on your lab performance. Students 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.

By the end of the second week of classes of the Directed Research semester: A final written proposal (maximum of 5 pages, double-spaced, excluding figures and references) must be provided to your committee members and supervisor via email. Please also send an electronic copy to the Undergraduate Program Assistant at mbugrad@sfu.ca. The proposal should provide a description of the proposed research, including the research problem in question, the objective/aims of the proposed research, relevant background information, the scientific approach to addressing the research problem and the expected outcome. References should be included. It may also be helpful to provide an approximate timeline of experimental goals through the semester. Samples are available to peruse in the MBB office. Your committee members will provide feedback on your written proposal by the end of week 4. You are encouraged to seek feedback if it is not provided.

Towards the end of the Directed Research semester: You should start writing your final report in the form of an honours thesis - the first part will often be an expansion of what was written for the initial proposal, followed by sections outlining results and discussion (separate or combined), conclusions and possibly a prospectus (future experiments). The final thesis should be submitted in electronic form to your committee members three days before your oral presentation. You should also contact your committee to organize a date for a public oral presentation of your work, to be evaluated as part of your final grade. This should be done well in advance of the desired date to ensure all committee members are available and a room is free. The MBB Department will publish a schedule of Directed Research course presentations and encourage people to attend. The thesis is due 3 working days before the oral presentation. It is imperative that you keep mbugrad@sfu.ca apprised of your defense date, time, etc.

At end of Directed Research semester: Oral presentation: at or near the end of the semester, you will give a 30-minute talk on your research, open to the public. This talk will usually follow the outline of your thesis (intro, results, discussion etc.). This will be followed by questions from your committee. Your performance in this oral defense will constitute your mark for MBB 483.

At the end you will receive 3 separate grades:
MBB 481-5 Honours Thesis - written reports (proposal and thesis)
MBB 482-5 Research Performance - quality, motivation, intellectual involvement
MBB 483-5 Honours Thesis Defense - oral presentation

Revised: May 30, 2019