

BIO 688 & 689 Independent Study/Research - non-thesis. 1-4 Credits.

A maximum of 6 credits of Independent Study can be applied toward the MCB degree.

The purpose of BIO 688 and BIO 689 is to allow MCB students to gain valuable research experience, under the guidance of a Research Advisor, while earning course credit. During BIO 688/689, the student will conduct a literature review and perform research for a minimum of 3 hours per week per credit. At least 1 week before the end of the semester, the student will submit a written summary of the work completed to either their Research Advisor (if associated with QU) or the MCB Director (if the Research Advisor works outside of QU). The final course grade will be based on the research component (as evaluated by the Research Advisor) as well as the final written summary. If the Research Advisor is affiliated with QU, the advisor will determine the overall grade. If the Research Advisor is not affiliated with QU, the MCB Director will assign a grade for the written summary which will be combined with the grade earned on the research component to determine the overall course grade.

First Steps:

- Identify a Research Advisor to work with in consultation with MCB Program Director and Academic Advisor.
- Work with your Research Advisor and your Academic Advisor to determine the number of credits required to complete the research and your degree requirements.
- Register for BIO 688 or BIO 689 Independent Study for non-thesis. The registration form can be obtained from the MCB Director, the MCB Blackboard site or on CAS360. Then student must complete a description of the proposal (1-3 paragraphs), which must include aims and citations. The proposal must be written by student. The form must also include a rubric, which be created by the Research Advisor and which will be used to evaluate the research component of the work performed (see example below). This rubric must include the assessment of a final written summary by the student (see below for more information). The completed registration form should be submitted to the MCB Director for approval.

Goals as defined in the MCB Handbook:

1. To work with a research advisor to perform scientific research.
2. To read background scientific literature and incorporate foundational MCB knowledge as it relates to the research advisor's area of concentration.
3. To synthesize background information and completed research into a written summary at the end of the semester.

Written Summary Guidelines:

At the end of the semester the student must complete a written summary of the completed project. This report must be clear and conform to the following requirements. This document needs to be submitted to the Research Advisor (or MCB Director if project was carried out outside of program) at least one week before the end of the semester:

A typeface of Arial or Helvetica (font size 10 points or larger). A smaller font size may be used for figure, tables, etc. All margins should be one inch.

The length should be between ~5-20 pages (depending on the number of credits taken) and should include the following sections:

- Title
- Abstract
- Introduction/Background
- Aims of the research
- Experimental approach/Methods used
- Results- include data figures in this section
- Discussion of results
- References

Sample research grading criteria (established individually by Research Advisor)

BIO 688:

- 25% Laboratory notebook
- 25% Attendance at weekly lab meetings
- 25% Poster presentation at conference
- 25% Written Summary

Details on individual components:

Laboratory notebook:

- Must detail all procedures and results.
- Must demonstrate scientific progress consistent with time expectation.

Attendance at weekly lab meetings:

- Presence and participation is required at all lab meetings.
- Presentation of research using powerpoint at least once a semester.

Poster presentation at a conference:

- Generate a poster based on literature review and proposed research topic and/or preliminary research conducted during the semester. This should include at least five references to primary source articles used as foundational material. One venue for this poster would be the QU Biology Departmental Poster Session at the end of the term.

Written summary:

- See guidelines above.

Contact information:

Alexandre de Lencastre, PhD
Director, Molecular and Cell Biology (MCB) Graduate Program
Professor of Biology
Quinnipiac University
Buckman Center - BC122
email: adelencastre@qu.edu
Phone: 203.582.5024