A successful thesis should demonstrate a student's ability to conduct guided independent research, exhibit engagement in original and critical thinking, apply knowledge acquired in courses to a specific set of problems, and be able to produce a clearly written thesis. The thesis must make significant contribution in the field of biological sciences.

Specifically, with the guidance of her or his advisor, the student must:

1. demonstrate that he or she has clearly defined a significant biological question
2. outline the experimental or analytical/modeling approaches to tackle this question. Some of the experiments, including the appropriate controls, must be designed by the student
3. carry out the research outlined in (2), possibly in collaboration with other graduate students or postdocs. If student's work included collaboration with others, the student must specify in his/her written thesis and oral thesis defense, which of the experiments were performed by him/her.
4. analyze and interpret his/her results, and draw the appropriate conclusions
5. summarize whether or not he/she successfully answered the biological question posed in (1), and define the future directions in which her/his project can be continued.

Minimum Thesis Requirements/Quality Standard of Thesis at Defense Time:

Defending a thesis successfully requires at a minimum that the student has obtained sufficient data to make a significant contribution to a research paper that will be published in a peer-reviewed journal. Such contribution could consist of one or more of the following:

- The student produces at least one figure or a table that will be included in a peer-reviewed research paper.
- The student’s work lays a significant foundation for further research (for example, the student conducts a genetic screen).
- The student develops a new technique or improves an existing method, producing a significant, applicable technical advance.

If the expectations listed above are not met, the thesis must at a minimum show that a substantial effort was made by the student to achieve these goals. The student’s advisor, with help from the MS Thesis committee, must determine that circumstances beyond student’s control prevented the student from meeting these expectations.