

Class of 2025 Graduation Requirements

Doctor of Philosophy in Applied Life Sciences (PhD)

The mission of KGI's PhD in Applied Life Sciences is to endow a select group of students with expertise in research areas relevant to applied bioscience, with the ability to use interdisciplinary tools and approaches to solve problems, and with the motivation to translate knowledge to beneficial applications to advance new horizons in the applied biosciences. The objective of this course is to guide doctoral students in the fulfillment of their major program milestones and ensure a streamlined trajectory for program completion. Students will complete milestones based on their corresponding year in the program, which will culminate in the student delivering their final Dissertation Defense presentation.

Program Learning Outcomes

After completing the PhD, students should be able to:

- Apply rigorous research methodologies to original, independent experimental, theoretical, and/or computational work in applied bioscience
- Integrate the fundamentals of computational and informational science, engineering design, and biomolecular technologies to solve problems in applied life science.
- Communicate effectively in an academic as well as in an industry environment composed of students, scientists, engineers, administrators and business professionals.
- Demonstrate core business analysis and management knowledge needed for the bioscience industry and can assume leadership roles in realizing the goals of technical and business projects.
- Develop both a broad understanding of current scientific advances and mastery in an area of interdisciplinary science of relevance to applied bioscience sufficient for conducting original research.
- Understand the translation of basic science and engineering discoveries into products and processes, which benefit society.
- Adhere to ethical principles in research, development and business issues inherent in the bioscience industries.

Graduation Requirements

In each semester, PhD students are required to pass PDEV 7200 Current Topics in Applied Life Sciences, a 1.5-credit course, that addresses bioindustry ethics, biomedical ethics, and serves as a weekly research seminar for all researchers at KGI. Requirements based on the student research progress and the semester of their due dates follow and are administered through RES 7000 PhD Research and Milestones, a 13.5-credit course.

First Year

First Semester

1. PhD Thesis Committee Established. Documented by Committee Recommendation/Revision Form signed by advisor and submitted by the student to PhD Office (within three months of starting program). External member CV or resume required.
2. Dissertation Literature Mastery Seminar (on PhD research). Documented by rubrics filled by attending faculty administered by PhD Office, Milestone reporting form by Advisor submitted to PhD Office immediately following seminar.

Second Semester

1. Research Symposium (Advisor-approved poster presentation). Documented by reviewer faculty rubrics
2. Dissertation Qualifiers: Thorough background & significance with research plan, early results, and complete references plus presentation to committee. The written report in faculty-specified format (review article or journal article format is typical) is due to the Committee at least two weeks prior to presentation. Documentation by Committee Feedback form filled by Faculty Advisor summarizing committee feedback submitted to both student and PhD Office.

Second Year

Summer and First Semester

No major deliverables. Student should work on research and prepare to provide the three deliverables in the second semester.

Second Semester

1. Research Symposium (poster presentation). Documented by reviewer faculty rubrics administered by PhD Office.
2. Graduate Student Literature Seminar (in their field but not their own Dissertation Research; Transferrable Skills). This provides background for Research Proposal in the Summer. Documented by rubrics filled by attending faculty administered by PhD Office, Milestone reporting form by Advisor submitted to PhD Office immediately following seminar.
3. Dissertation Progress Report and Presentation to Committee: The written report in faculty-specified format (journal article format is typical) is due to Committee at least two weeks prior to presentation. Documentation by Committee Feedback form filled by Faculty Advisor summarizing committee feedback submitted to both student and PhD Office.

Third Year

Summer

Transferable Skills – Research Proposal/Business Plan in field but outside dissertation topic. Topic and format approved by Advisor (6-10 page is typical e.g., SBIR Phase I proposal format) to be assessed by committee. Documentation by Committee Feedback form filled by Faculty Advisor summarizing committee feedback submitted to both student and PhD Office before Fall semester begins.

First Semester

Research manuscript published or Publication-Quality draft manuscript where student is the primary or other important contributing author. Documented by Milestone reporting form by Advisor submitted to PhD Office before semester ends.

Second Semester

1. Research Symposium (oral presentation). Documented by reviewer faculty rubrics administered by PhD Office.
2. Dissertation Draft due to the Committee. Submit by April 7 to graduate in May; at least eight weeks prior to July and December graduations.
3. Dissertation Defense to be scheduled two weeks prior to the required Committee Approval Date. Documented by Dissertation Defense form signed by all Committee Members upon completion of the committee meeting immediately following the defense seminar.
4. Dissertation Completion. Documented by PhD Dissertation Completion form signed by all Committee members after corrections/editing post defense AND confirmation from the library that final Dissertation has been posted.