PhD Graduation Requirements

Program Description

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:

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Apply rigorous research methodologies to original, independent experimental, theoretical, and/or computational work in applied bioscience</td>
</tr>
<tr>
<td>2.</td>
<td>Integrate the fundamentals of computational and informational science, engineering design, and biomolecular technologies to solve problems in applied life science.</td>
</tr>
<tr>
<td>3.</td>
<td>Communicate effectively in an academic as well as in an industry environment composed of students, scientists, engineers, administrators and business professionals.</td>
</tr>
<tr>
<td>4.</td>
<td>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.</td>
</tr>
<tr>
<td>5.</td>
<td>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</td>
</tr>
<tr>
<td>6.</td>
<td>Understand the translation of basic science and engineering discoveries into products and processes, which benefit society.</td>
</tr>
<tr>
<td>7.</td>
<td>Adhere to ethical principles in research, development and business issues inherent in the bioscience industries.</td>
</tr>
</tbody>
</table>

Graduation Requirements:

In each semester, PhD students are required to pass ALS503 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.

**Year 1**

1st Semester

1. PhD Thesis Committee Recommendation/Revision Form (within 3 months)
2. Dissertation Literature Mastery Seminar (thesis-related topic)
3. PhD Dissertation Research Plan
4. Lab Safety Training (Certificate of Completion)
5. Online Research Ethics Course

Rev. 9-17-20 kmc
For Registrar
2nd Semester
1. Research Symposium poster presentation
2. Dissertation Progress Report
3. Dissertation Progress Presentation to your Committee Members

Year 2
1st Semester

1. Literature review written report
2. Graduate Student Literature Seminar

2nd Semester
1. Research Symposium (required poster presentation)
3. Dissertation Progress Presentation to your Committee Members
4. 

Year 3
1st Semester:

1. Transferable Skills (Research Proposal/Business Plan/TMP outside dissertation topic)
2. Graduate Student Literature Seminar

2nd Semester:

1. Research Symposium (oral presentation)
2. Research manuscript published or in final stages of publication where student is the primary author (submit pdf)
3. Dissertation
4. Dissertation Defense (to be scheduled within two weeks of Thesis Committee approval)