PhD in Biological and Biomedical Sciences
Program Procedures and Information

Program Requirements: All program requirements are detailed online in the Oakland University Graduate Catalog. Students and faculty who participate in the program are expected to be knowledgeable of, and adhere to, the requirements therein.

Program Administration: The PhD in Biological and Biomedical Sciences is offered by the Department of Biological Sciences within the College of Arts and Sciences. This program is administered by the Biological Sciences PhD Committee (hereafter referred to as the PhD Committee). This committee is a separate committee from that which oversees the Biological Sciences Master's program. The PhD Committee is charged with the general administration of the program, review and approval of applicants for admission, determination of student proficiency, approval of student Dissertation Committee and examiners, administration of qualifying exams, program review, consideration of student petitions, annual progress reviews of students, and final approval that candidates have fulfilled all degree requirements. The PhD Committee will also advise each incoming student until the student's Dissertation Committee is established. The PhD Committee is chaired by a full-time Oakland University faculty member who will be the Program Coordinator.

Degree Requirements: The basic requirements for the PhD in Biological and Biomedical Sciences are the completion of a unified program of formal course work, a series of written and oral qualifying exams, and independent research (dissertation research). A reasonable amount of time for completion is five years. Consult the Graduate Catalog for policies on time for completion.

Admission: Admission is selective and decisions on admission will be made by the PhD Committee. Application and admission requirements are given in this program's entry in the Oakland University Graduate Catalog.

Application Deadline: Consult the Office of Graduate School.

Proficiency of Entering Students: Consult the Graduate Catalog for admission requirements.

Doctoral Residency Requirement: (This refers to enrollment status, not where you live): All students in the program are required to be enrolled on a continuous full- time basis during the academic year. Students who have completed their formal coursework maintain their full-time status by registering for research credits. A student must be registered for the semester in which they defend their dissertation.

Course Work and Credit Requirements: Course work and credit requirements are given in the Graduate Program Catalog.

Academic Conduct and Research Ethics: Consult the Dean of Student's Student Code of Conduct website.

Rotation Program: A newly admitted student may have the option of beginning their doctoral training through a laboratory rotation program consisting of two or three separate laboratory rotations during their first academic year in the program. The student will receive BIO 6995 credit for each rotation. The PhD Committee will approve all rotation arrangements which must be upon the mutual consent of student and faculty.

Teaching Experience: Teaching skills are regarded as important for employment in both academic and industrial sectors of science. All PhD students shall have the option to gain teaching experience as a teaching assistant for undergraduate courses or laboratories. The teaching may be used either to fulfill credit requirements (BIO 697) or to fulfill the terms of a teaching assistantship.

Annual Review: Each student will meet annually with the program coordinator to ensure satisfactory academic progress and good academic standing as outlined in the Graduate Catalog. Once a student has formed a Dissertation Committee, they must meet with their Dissertation Committee annually. The Dissertation Committee will submit a report to the PhD committee.

Financial Support: All students in the program should be supported with a stipend that meets the standards given in the document Oakland University Graduate Assistant Policy Guidelines. Oakland University offers graduate student stipends in the form of Teaching Assistantships and Research Assistantships. Another source of support is external grant funding through the student's research advisor or other sources. Please visit OU's Graduate School Financial Assistance Page or Student Financial Services Financial Aid for Graduate Students webpage for more information. You may also review the Graduate School's Graduate Assistant Overview document.

Selection of Research Advisors: Selection of a research advisor is upon mutual consent of the student and mentor and must be approved by the PhD Committee. The student's research advisor must show ability to provide financial support for the student's research work and is expected to provide a summer stipend to a student receiving university support during the academic year. Any changes of research advisor must be approved by the PhD Committee.

Selection of Dissertation Committee: The student's Dissertation Committee will consist of the student's research advisor and two other faculty members selected by mutual agreement of the student and research advisor and approved by the PhD Committee. This committee must be selected prior to review of the research proposal. The Dissertation Committee will have the responsibility of giving approval of the

student's dissertation proposal and, finally, the dissertation.

Dissertation Proposal: The student will present to his/her Dissertation Committee a written research proposal outlining the problem to be studied, a survey of the appropriate literature, a description of the appropriate techniques, and an outline of the experiments to be performed. The Dissertation Committee evaluation and recommendation will be forwarded to the PhD Committee together with the proposal. This must be completed before the end of two calendar years. Exceptions may be granted by the PhD Committee.

Qualifying Exams: Together with completion of formal coursework, the qualifying exams determine whether the student will be allowed to continue in the Biological and Biomedical Sciences PhD Program. The qualifying exams will consist of two parts: written and oral. All students must pass both of these components to advance to candidacy for the PhD degree.

The **written** component will consist of a series of "cume exams", each covering a current development in the biological sciences. To continue in the program, each student must pass three cume exams within their first two years and before taking their oral qualifying exam. Students must sit for at least one exam in their first year in the program (it is recommended that they take two). Cume exams will be offered up to two times per semester, as needed. Exams will be graded pass or fail. If the student is unable to meet this criterion, they will be dismissed from the PhD program, but will be allowed to complete a Master of Science in Biology.

The **oral** component will take place after the student has passed the written component, had their dissertation proposal approved by their Dissertation Committee, and completed their formal coursework (except for SCI 5110). The oral exam committee will consist of the student's Dissertation Committee and two additional examiners appointed by the PhD Committee in consultation with the student's advisor. One of these additional examiners will be a member of the PhD committee and will chair the exam. Areas for questioning are the student's dissertation plan, scientific knowledge directly connected to their dissertation plan, and areas of scientific knowledge more broadly connected to the student's dissertation research.

The exam will consist of a dissertation proposal seminar that will be open to the department faculty and students and the oral qualifying exam which will only be attended by the student and their oral exam committee. The proposal seminar and the exam may be held on separate dates with the open seminar first and the oral exam one or a few days later. (This will be determined by mutual agreement between the student and the examining committee.) Once the committee is satisfied that the student has adequate knowledge in the relevant areas and has a sound research plan, then the exam is considered complete. If the committee is not satisfied with the student's knowledge, the soundness of their research plan, or their performance in the exam,

then the student must retake the oral exam. If the student's performance is judged unsatisfactory in the second oral exam, the student will be dismissed from the PhD program, but will be allowed to complete a Master of Science in Biology.

Doctoral Dissertation: A major component of the program is the successful completion of an original research project, including a written dissertation. The dissertation must be approved and signed by all of the members of the Dissertation Committee, after completion of the dissertation defense (see below). In addition to the completion of the dissertation, it is expected that the research accomplished will be published in peer-reviewed journals. Minimally, a student must be first author on at least one manuscript from their dissertation work that is accepted or submitted to a peer- reviewed scientific journal. A copy of a submitted manuscript must be provided to the PhD committee before scheduling the dissertation defense.

Dissertation Defense: Upon completion of the penultimate draft of the written dissertation, the student will present the results in a seminar open to the public, immediately followed by a defense of his/her dissertation in a closed meeting with his/her Dissertation Committee. After questioning the student, this group will decide if final approval is merited. As additional dissertation suggestions may arise at this meeting, the final copy will be prepared after the defense.

If the Dissertation Committee is not satisfied with the student's defense, they will provide directions for the student to correct any deficiencies and an expectation of time to accomplish this. After the student has corrected their deficiencies, a new dissertation defense will then be conducted. If the student fails this defense, they will be dismissed from the doctoral program, but allowed to submit their dissertation for a Master of Science in Biology.

Appendix 1. Synopsis of a student's progress in the doctoral program

Year 1
Formal coursework lab rotations
Selection of research advisor
Begin taking cume exams. A student must take at least one during their first year.
Formation of Dissertation Committee

Year 2
Continuation of formal coursework with completion by the end of year 2
Student must complete cume exams and have passed either 3 of 4, 4 of 6, or 5 of 8.
Completion of written dissertation proposal
Selection and approval of oral exam committee

Spring/Summer after Year 2
Oral qualifying exam

Year 3 and beyond
Student is enrolled for research credits (BIO 7999) and works to complete doctoral research and dissertation.
Dissertation defense

Appendix 2. Committees in this program

Full details of the responsibilities are given throughout this document

Biological Sciences PhD Committee
(referred to throughout this document as the PhD Committee)
This is a College of Arts and Sciences committee and its members are appointed by the dean. The program coordinator chairs this committee.

Dissertation Committee
This committee reviews the student's initial dissertation proposal and the student's final dissertation and dissertation defense. The committee consists of the student's research advisor and two faculty members who are qualified to advise and evaluate the student on his/her research topic.

Oral Exam Committee
This committee administers the oral part of the qualifying exam.
The committee consists of the Dissertation Committee plus two members appointed by the PhD Committee.