BIOLOGY
GRADUATE HANDBOOK

2007-2008

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A. OVERVIEW OF GRADUATE PROGRAM

1. Admission

Admission to graduate study in Biology requires: 1) a baccalaureate degree from a recognized undergraduate institution, including course work in calculus, physics and organic chemistry; 2) completion of the Graduate Record Examination, including the subject test in some area of biology; 3) a faculty advisor. The student is free to change advisors if it becomes appropriate to do so, but every student must have a faculty advisor before admission is granted.

Outstanding students who lack preparation in particular areas may be admitted to the program, contingent upon prior arrangements made to correct said deficiencies with the Director of Graduate Studies, in consultation with the prospective student's faculty advisor and the Graduate Admissions committee. Any deficiencies identified will be required to be made up within two years of the entrance date.

2. Advisement

All new students must meet with a program committee during the first semester of matriculation. This committee (consisting of the advisor and one or two other faculty members, depending or whether student is in the Masters or Ph.D. program, respectively) will review the student's academic background and specify any additional preparatory course work deemed necessary. The advisor will file a report of the meeting in the Graduate Office.

3. Research with Animals or Humans

Campus and Federal requirements stipulate that any research project using animals or humans must be approved by the appropriate Campus committees prior to the initiation of research. This applies not only to research being conducted on campus, but also to all research conducted by UM faculty or students at other sites around the world. **Research conducted off-campus, even if covered by an approved protocol at the off-campus site, must also be approved by our campus committees. Students should discuss approvals with their advisors before beginning research.**

4. Degree Programs

There are three graduate degree programs offered by the Department of Biology, a non-thesis Master's (an option available only to graduate students currently advised by Biology faculty), a thesis Master's, and a Ph.D. The detailed requirements for each program are described on the pages that follow.

B. REQUIREMENTS FOR MASTER OF SCIENCE IN BIOLOGY (NON-THESIS OPTION)

The non-thesis Master of Science degree option is available only for doctoral and master's research students, currently working with Biology faculty advisors, who wish to leave the graduate program without completing the research-based degree. External applications for the non-thesis master's option are no longer being accepted. In addition, the non-thesis master's degree program provides the opportunity for Ph.D. candidates to earn an M.S. degree while completing the course work appropriate for their Ph.D. program.

1. Advisement

All new M.S. students must meet with a Program Committee during the first semester of matriculation. This committee, consisting of the advisor and one other Biology faculty member, will review the student's academic background and specify any additional preparatory work deemed necessary. The advisor will submit a report of the meeting to the Graduate Office.

2. Course and Credit Requirements

a) Any deficiencies noted by the Program committee must be addressed by taking the recommended courses.

b) Completion of no fewer than 30 hours of course work with an average of "B" (3.0).

i) Of these 30 hours, at least l8 hours must be at the 600-level or above (BIOL799, Master's Thesis Research, and BIOL898/899, Dissertation Research, do not count in this program). The other l2 hours can be at the 400-level or above.

ii) Of these 30 hours, no fewer than l6 hours must be in Biology.
- Of these l6 hours, three courses should be in a single area of specialization within Biology.

c) All requirements for the Master's degree should be completed within a three-year period. In no case will an exception be made to extend the time beyond the five-year Graduate School limit.

3. Evaluation of Progress

a) Grade Point Average

A student must have a grade point average of at least 3.0 in graduate course work. Courses in which a "D" or "F" was earned do not need to be repeated, but these grades will be counted as credits attempted in the computation of the grade point average (GPA). Coursework (600-level and above) graded "I" (Incomplete) does not need to be removed from the transcript and is not counted in any way by the Graduate School. The "Pass-Fail" option, which may be elected by undergraduates, is not available to graduate students at the 400-level and above. Therefore, all courses, other than those below the 400 level taken to alleviate deficiencies should be taken with the letter grading option. Seminars (BIOL608) and Special Problems (BIOL609) credits can be used as part of the required

credit total for the non-thesis master's program, although grades in these courses will not be used in departmental computation of GPA. An exception to this rule occurs if a student receives an F, in which case this grade will be included in departmental calculations of GPA.

A student who fails to maintain at least a "B" average will automatically be placed on probation for the next semester. If the grades earned during the probationary semester do not raise the average to at least a "B" (3.0), the student's matriculation may be cancelled at the end of the probationary semester.

b) Periodic Progress Reports

Each Spring the student must submit an updated course plan (revised if necessary) for the annual departmental review of all graduate students. Depending upon the results of this, the Biology Faculty may place the student on probation for failure to make satisfactory progress toward the degree. In this case, both the advisor and the student are notified of the student's probationary status, the conditions for retention in the graduate program and the date by which they must be met. Failure to submit all requested forms by required deadlines, may result in a student being placed on departmental "administrative warning."

4. Scholarly Paper

One scholarly paper must be written in an area of biology approved by the student's advisor. The paper is to be developed apart from course work. The source material for the paper can be current scientific literature, laboratory work, or field observations, and must contain a synthesis of the subject that goes beyond the current literature. During the semester before the paper is to be written, the student, advisor, and an additional faculty member, who will serve as a second reader of the paper, will meet to decide the area, topic, and scope of the paper. A form describing the results of this meeting will be filed with the Director of Graduate Studies. After this meeting, the student will write the paper obtaining advice from the advisor as necessary. The final paper must be submitted for approval by the advisor and second reader at least 2 weeks prior to the final date specified by the Graduate School for submission of forms certifying degree completion. The paper must receive the written approval of both faculty members. After such approval is obtained, the paper must be placed in the student's file in the office of the Director of Graduate Studies.

The thesis from a failed M.S. thesis defense may not be submitted to fulfill the scholarly paper requirement for the non-thesis M.S. unless appropriate revision has occurred. Such papers require signed approval by two Department faculty members.

The proposal prepared for a successful preliminary examination for Ph.D. candidacy shall automatically satisfy the scholarly paper requirement for the non-thesis M.S.

[Note: The requirement for comprehensive examinations has been eliminated.]

6. Completing the Program

Prospective candidates for the non-thesis Master's degree must submit an application for their diploma and other required paperwork to the Graduate School by deadlines announced each semester.

Revised November 2005

C. REQUIREMENTS FOR MASTER OF SCIENCE IN BIOLOGY (THESIS OPTION)

The thesis Master of Science degree program provides qualified students with the opportunity to enroll in advanced course work and to undertake a research project.

1. Advisement

Each student's thesis project is developed individually with a faculty advisor. If it is appropriate, at any point during the degree program, the student or the advisor is free to initiate a change in advisor. A student whose thesis research is being done under the direction of an adjunct professor must have a co-advisor within the Department. Only faculty with adjunct or affiliate status in Biology or another closely associated graduate program (CONS, NACS, BEES, etc.) may co-advise Biology graduate students.

All new M.S. students must meet with a Program Committee during the first semester of matriculation. This committee, consisting of the advisor and one other Biology faculty member, will review the student's academic background and specify any additional preparatory work deemed necessary. The advisor will submit a report of the meeting to the Graduate Office.

2. Course and Credit Requirements

a) Any deficiencies noted on admission or by the Program Committee must be addressed by taking and passing the recommended courses or by being certified by examination to have knowledge in the area deemed equivalent to a pass in the course covering the same area. Course work deficiencies must be removed within two years of admission date.

b) Completion of 30 credits of courses distributed as follows:

i) 6 hours must be thesis research (BIOL799).

ii) Of the remaining 24 hours of course work:
12 must be at the 600-level or above
l2 hours can be at the 400-level or above.
12 hours must be in Biology courses
None can include thesis research credit (BIOL799).

c) All requirements for the Master's degree are to be completed within a three-year period. In no case will exceptions be made to extend the time beyond the 5-year Graduate School limit.

3. Evaluation of Progress

a) Grade Point Average

A student must maintain at least a 3.0 average in graduate course work. Courses in which a grade of "D" or "F" was earned do not need to be repeated, but these grades will be counted in computation of the grade point average (GPA). Coursework (600-level and above) graded "I" (Incomplete) does not need to be removed from the transcript and is not counted in any way by the Graduate School. Standard letter

grades are given in all graduate level courses (including 400 level and BIOL 799, Thesis Research). The "Pass-Fail" option, which may be selected by undergraduates, is not available to graduate students at the 400-level and above. Although BIOL 608, 609, and 799 will be used as part of the required credit total for the master's degree, passing grades will not be used in departmental computation of GPA. The sole exception to this will be if an F is received in BIOL 608, 609, or 799, in which case these grades will be included in departmental calculations of GPA.

A student who fails to maintain at least a "B" average will automatically be placed on probation for the next semester. If the grades earned during the probationary semester do not raise the average to at least a "B" (3.0), the student's matriculation may be cancelled at the end of the semester.

b) Periodic Progress Reports

Each Spring the student must submit a short research progress report for the annual departmental review of all graduate students. Failure to submit requested forms may result in a student being placed on "administrative warning". Following the evaluation, the Biology Faculty may place the student on probation for failure to make satisfactory progress toward the degree. In this case, both the advisor and the student are notified of the student's probationary status, the conditions for retention in the graduate program and the date by which the conditions must be met.

c) Research Proposal

By the end of a Master's degree candidate's third semester the student must submit a research proposal to the Director of Graduate Studies. If such a proposal has not been received by the time indicated, the student may be deemed as not making sufficient progress towards their degree and be placed on probation. Failure to submit a proposal the semester after being placed on probation may result in cancellation of matriculation.

4. Thesis Defense

a) Submission of Thesis

It is the student's responsibility to furnish copies of the thesis to the committee members at least seven working days before the examination. The oral examination may be conducted whenever the thesis is completed to the satisfaction of the advisor, providing the student has completed all other requirements for the degree and has at least a "B" average on all graduate work.

b) Composition of the Examining Committee

The oral defense of the Master's thesis is conducted before a committee composed of a minimum of three members, appointed by the Dean for Graduate Studies and Research. The student's advisor chairs the committee. The other members of the committee are persons who are familiar with the student's program of study. Nominations for membership on the committee are submitted for approval to the Director of Graduate Studies by the student's advisor on the form certifying that the thesis has been completed and is ready for examination by the committee. A copy of the abstract of the thesis must accompany this form. The chair of the committee selects the exact time and place for the examination and notifies the other members of the committee and the candidate.

c) Evaluation of Thesis

The committee vote to pass a student on their oral examination must be unanimous. One dissent constitutes a failure. At the discretion of the committee, the student who fails may be permitted a second examination after acting on suggestions for improvement of the thesis (collection of more data, use of a different statistical analysis, rewriting of the discussion, etc.) and at such time as the major advisor may consider appropriate.

d) Outcome

The report of the examining committee is submitted to the Dean and a copy placed in the student's departmental file.

5. Completing the Program

It is the responsibility of both student and advisor to meet the Graduate School deadlines for certification of thesis completion and for the report on the outcome of the oral examination. The thesis in its final form (incorporating changes required by the committee) must be submitted electronically to the Graduate School by the announced deadline.

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B. REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY IN BIOLOGY

The Ph.D. program in the Biology Department is primarily a research-oriented program. It is designed to provide maximal opportunity for students to evolve and develop their capacity for scholarship and independent work. The program is individually tailored to each student to enable him or her to explore a specific area of research "in-depth", and to make an original contribution to that particular field of science. Because the program is designed individually, it may be modified as research evolves.

1. Advisement

Due to the individual nature of the Ph.D. program, the Faculty Advisor-Graduate Student relationship is fundamental to the education and growth of the graduate student. A student whose doctoral research is being done under an extra-departmental advisor must have a co-advisor within the Department. Only faculty with adjunct or affiliate status in Biology or another closely associated graduate program (CONS, NACS, BEES, etc.) may co-advise Biology graduate students. However, students are encouraged to seek advice, guidance, and help from several faculty members to gain additional knowledge, concepts, or techniques that may be useful to them in their research. When appropriate, due to divergent research interests or other factors, either the student or the advisor is permitted to initiate a change in advisor. All parties involved must be notified in writing of the change, with a copy of the letter provided to the Director of Graduate Studies for inclusion in the student's file. It is the student's responsibility to obtain a new advisor within the same semester that the change occurred. Under exceptional circumstances, the Director of Graduate Studies may allow the student an additional semester to obtain another advisor. Failure to obtain a faculty advisor within a year of the change may result in cancellation of matriculation.

All new students (including students with extra-departmental advisors) must meet with their departmental advisor before registering for classes. The purpose of this meeting is to review the student's academic background and research interests prior to developing an appropriate schedule of classes for the first semester. Typically, the first semester's courses include course work that was specified as deficiencies at the time of admission.

All students must meet with a **Program Committee** during the first semester of matriculation. This committee, consisting of the advisor, two other faculty members and a senior graduate student, will review the student's academic background and recommend appropriate course work. The advisor will submit a report of this Program Committee meeting to the Graduate Office for review and approval by the Director of Graduate Studies.

The **Advisory Committee** (consisting of the advisor, three other faculty members, and a senior doctoral graduate student) will meet with the student during the second semester of the first year. This meeting is intended to review the student's background in their proposed research area and help develop research plans. The Advisory Committee meeting will recommend a flexible course program for the student, subject to change and adjustment by the faculty advisor as the student's research evolves. A report of this meeting will be filed by the advisor with the Graduate Office. This report and any subsequent modifications to the course program shall become part of the student's academic record filed with the Director of Graduate Studies.

At the **"Pre-Prelim" Meeting**, the proposed full preliminary exam committee will meet with the student during the semester prior to the preliminary exam. The student will prepare a preliminary proposal (not as complete as the formal proposal but outlining the proposed dissertation research) and will submit this brief proposal to the committee members one-week prior to this meeting. The committee will review the preliminary proposal and assess the student's background and the feasibility of the research. At the meeting, the student and committee members will also discuss and approve the format of the final proposal that will be submitted prior to the preliminary examination, areas to be covered in the preliminary exam, recommended readings, and any other issues pertinent to the format of the preliminary exam. A report of this Preliminary Exam Meeting will be filed by the advisor with the Graduate Office. This report will include a copy of the preliminary proposal, revised as suggested by the committee, and will serve as the progress report for that year.

2. Course and Credit Requirements

A doctoral candidate must complete a minimum of 12 semester hours of post-candidacy doctoral research (BIOL899), and a total of 30 hours of graduate academic credit. At least 24 of the 30 credit hours must be at the 600-level or above (these can include BIOL898/899 credits). No transfer credits from another institution are acceptable.

If the student wishes to change from a Ph.D. to the M.S. program, he or she must submit a letter co-signed by an appropriate advisor to the Director of Graduate Studies requesting the change.

3. Evaluation of Progress

a) Grade Point Average

A student must maintain a GPA of 3.0 in graduate course work. Courses in which a "D" or "F" was earned do not need to be repeated, but these grades will be counted as credits attempted in the computation of the grade point average (GPA). Coursework (600-level and above) graded "I" (Incomplete) does not need to be removed from the transcript and is not counted in any way by the Graduate School. Standard letter grades are given in all other graduate level courses (including 400 level and BIOL 898/899, Dissertation Research). The "Pass-Fail" option, available to undergraduates, is not available to graduate students for courses at the 400-level and above. Although BIOL608 (Seminars), 609 (Special Problems), and 898/8899 (Dissertation Research) will be used as part of the required credit total for the doctoral degree, grades in these courses will not be used in the departmental computation of GPA. The sole exception to this will be if a grade of F is received, in which case it will be included in departmental calculations of GPA. A student who fails to maintain a "B" average will automatically be placed on probation for the next semester. If the grades earned during the probationary semester do not raise the average to "B" (3.0), the student's matriculation may be canceled at the end of that probationary semester.

b) Progress Reports

Each Spring, the student must submit a short progress report for the annual departmental review of all graduate students. Following this review, the Biology Faculty may place the student on probation for failure to make satisfactory progress toward the degree. In this case, both the advisor and the student are notified of the student's probationary status, the conditions for retention in the graduate program and the

date by which they must be met. Failure to submit all requested forms by required deadlines, may result in a student's being placed on "administrative warning".

c) The Preliminary Examination

i) Purpose

The purpose of the preliminary examination is to determine whether the student has the proper educational background, motivation, intellectual capacity and curiosity for the Ph.D. program, and whether the student has or can develop the research proficiency to complete the Ph.D. program successfully. The examination generally focuses on a proposal written by the student describing the dissertation research project. The student should also expect to be questioned on a broader range of subjects.

The student ultimately may complete a project that differs from the one proposed at the preliminary examination. In this case, another preliminary examination is not required for the new project, although the student is encouraged to hold an advisory committee meeting to discuss the change with appropriate faculty members.

ii) Composition of Examining Committee

The preliminary examination is conducted by a faculty committee nominated by the academic advisor and approved by the Director of Graduate Studies at least two weeks in advance of the exam. The examining committee shall consist of a minimum of five members, three of whom must be full-time Biology faculty members who are also regular members of the Graduate Faculty. A co-advisor who is not a full-time member of the Biology faculty (i.e., affiliates or adjuncts) will not count as one of the three Biology faculty members of the committee. The remaining committee members should have academic credentials comparable to those of the Biology faculty. Individuals who are not members of the University of Maryland Graduate Faculty, may be nominated to serve as a member of the preliminary examination committee by submitting a letter to the Director of Graduate Studies that briefly describes the nominee's qualifications.

iii) Scheduling the Exam

The preliminary exam must be taken within the first five semesters after entrance into the Ph.D. program. For students whose study begins in the fall semester, five semesters shall be interpreted as ending on the 24th of December of the fifth semester. For students whose study begins in January (spring semester), five semesters shall be interpreted as ending on the 31st of May of the fifth semester. Only under rare circumstances and with advance permission of the Director of Graduate Studies will postponement of preliminary exam deadlines be permitted.

iv) Written Proposal

In preparation for the examination, the student will write a proposal describing the dissertation project in a format acceptable to the preliminary exam committee. When in final form and approved by the advisor, the proposal will be distributed to the members of the examination

committee at least two weeks in advance of the examination. An additional copy of the proposal must be provided to the Director of Graduate Studies for inclusion in the student's file.

Guidelines for the Format of the Proposal:

Abstract: Write this last. This is a concise summary of the significance of the science, your objectives in doing the research, your strategy and experimental approach, and what results you have obtained so far. Limit the length to 300 words.
Specific Aims: State a global hypothesis, specific hypotheses, and specific aims which will address the hypotheses. This section is recommended to be one page in length.
Background: Introduce the fields of study that are pertinent to your proposal. Provide any theoretical background. This section should be 5 to 10 pages in length.
Preliminary Studies: Present your results concisely pointing out successes and challenges. Attach any of your publications that are pertinent to the proposal as appendices.
Research Design and Methods: This is the core of the proposal…it is a proposal, not a report on your achievements. Outline detailed experiments by which the specific aims are to be achieved. Each experiment should contain an objective, experimental plan, and a success criterion. Provide enough details so that the committee can evaluate the quality of the experimental design and data analysis. Include an estimated time line and sequence for the proposed research.
Cited References: List these but these are not included in the page limitation.
Length of Proposal: The proposal should not to exceed 30 pages using a 12pt font and 1.5 line spacing. This includes figures and tables.

v) Evaluation

The examining committee will conclude that the student has passed or failed on the basis of the student's performance during the preliminary examination. The exam will be formally divided into two parts, defense of the proposal and a test of general knowledge. A committee member may not demand of the student or the student's advisor the fulfilling of any conditions in exchange for an affirmative vote. However, the student and advisor may solicit the advice of the committee members concerning further ways to strengthen the student's future training.

For each part of the exam, the student shall pass if all, or all but one, of the committee members cast positive votes. Two or more negative votes on either the proposal defense or test of general knowledge constitute failure of that part of the exam. Failure of both parts at the first exam by a unanimous or unanimous-minus one vote may result in the student’s matriculation being canceled.

In instances where a second preliminary examination on one or both portions of the exam is warranted, the exam will be scheduled at such time as the major advisor considers appropriate, but no sooner than six months and no later than one year from the date of the first examination. The examining committee may recommend revisions to the proposal, additional course work, reading, or supplementary means of examination prior to the second exam. Ultimately, students must pass both parts of the exam.

vi) Outcome

A written report of the preliminary exam results is to be given to the Director of Graduate Studies for inclusion in the student's file.

Once the preliminary exam has been passed, the student must apply within one week to the Graduate School for admission to doctoral candidacy. Application forms will be provided by the Director of Graduate Studies at the time of the exam. A copy of the application must be given to the Director of Graduate Studies for inclusion in the student's file. Students must be admitted to candidacy at least one academic year (two semesters) prior to the conferring of the degree.

The research proposal written by a student who successfully completes the preliminary examination shall automatically fulfill the scholarly paper requirement for the non-thesis M.S. degree. The student can apply for that degree if the 30-credit coursework requirements have also been satisfied.

d) Dissertation Seminar

All Ph.D. candidates must give a formal seminar to the Department that presents the final results of their dissertation research. The seminar is open to faculty, students and other interested parties. It will be presented immediately preceding the oral dissertation defense. Dissertation seminars may be scheduled as one of the department's regular specialty seminars as long as that venue precedes the defense. The student and advisor should ask the graduate secretary to announce the seminar.

4. Defense of Dissertation

a) Scheduling Defense

The doctoral dissertation must be completed and defended within three years after passing the preliminary examination. Students requiring additional time may appeal to the Director of Graduate Studies, stating their circumstances. At the discretion of the Director, a student may be allowed an extension to the Graduate School limit of four years following admission to candidacy.

The time and place of the examination are established by the student's advisor. The student is responsible for distributing a complete copy of the dissertation to each member of the committee at least ten working days before the examination.

b) Composition of Examining Committee

The final oral defense of the dissertation is conducted by a committee of the Graduate Faculty appointed by the Dean for Graduate Studies. Nominations for membership on the committee should be made by the student and his or her advisor and are submitted on the designated form to the Director of Graduate Studies for approval. Nominations should be made by the third week of the semester in which the student expects to complete all requirements, but no later than two months prior to the examination. An abstract of the dissertation must accompany this form.

The major advisor serves as chairperson of the committee, which will consist of a minimum of five voting members, all of whom hold the doctoral degree. At least one of the five must be a faculty member in a department or graduate program at UMCP other than the one in which the student is

seeking the degree. A minimum of three members of the committee (including the chairperson) must be regular members of the Graduate Faculty of the University of Maryland.

One or more members of the committee may be persons from other institutions who hold the doctorate and who are distinguished scholars in the field of the dissertation. However, a request for their appointment together with a copy of their curriculum vitae must be submitted to the Director of Graduate Studies for approval with the committee appointment form. Once approved by the Director of Graduate Studies, the committee will be forwarded to the Graduate School for the Dean's approval.

The Dean for Graduate Studies designates one member of the committee as the Dean's Representative. In addition to having the normal responsibility of a faculty examiner, the Dean's Representative has the responsibility of assuring that the examination is conducted according to established procedures. Any disagreement over the examination procedures is referred to the Dean's Representative for decision.

c) Suggested Procedures for the Final Oral Examination

The student's major advisor is responsible for chairing the examination. The chairperson has some latitude in the manner of conducting the examination, but the following major steps are usually to be followed. Of paramount importance is consideration for the candidate. He or she may be under considerable strain, and it is particularly inadvisable to let the meeting run on for an unreasonably long period of time.

i) Any member of the Graduate Faculty is permitted to attend a doctoral examination, but only members of the appointed committee may question the student and vote at the conclusion of the examination.

ii) The student, the committee, and any attending members of the Graduate Faculty convene in closed session.

iii) The Dean's Representative is identified, and his/her special functions explained.

iv) The student may briefly present high points of the dissertation, emphasizing the important aspects and giving an explanation of the reasoning which led to the conclusions reached.

v) The chairperson invites questions in turn from members of the Committee, going through the whole group. The questioning may continue as long as the Committee feels necessary to properly examine the student.

d) Conclusion of the Defense

After questioning has been completed, the student is asked to leave the room, and the Committee discusses whether the defense has been satisfactory. The committee has the following alternatives:

i) To accept the dissertation without any recommended changes and sign the Report of Examining Committee.

ii) To accept the dissertation with recommendations for changes and, except for the chair, sign the Report of the Examining Committee. The chair will check the dissertation and, upon his or her approval, sign the Report of Examining Committee.

iii) To recommend revisions of the dissertation and not sign the Report of Examining Committee until the student has made the changes and submitted the revised dissertation for the Dissertation Examining Committee's approval. The Dissertation Examining Committee members sign the Report of the Examining Committee if they approve the revised dissertation.

iv) To recommend revisions and convene a second meeting of the Dissertation Examining Committee to review the dissertation and complete the student's defense.

v) To rule the dissertation (including its defense) unsatisfactory. In that circumstance, the student fails.

Following the defense, the chair, in the presence of the Dean's Representative, must inform the student of the outcome of the defense. The chair and the Dean's Representative both sign a statement indicating which of the above alternatives has been adopted. A copy of the statement is to be included in the student's file at the graduate program office, and a copy is given to the student.

e) Passage or Failure

The student passes if one member refuses to sign the Report, but the other members of the Dissertation Examining Committee agree to sign, before or after the approval of recommended changes. Two or more negative votes constitute a failure of the candidate to meet the dissertation requirement. In cases of failure, the Dissertation Examining Committee must specify in detail and in writing the nature of the deficiencies in the dissertation and/or the oral performance that led to failure. This statement is to be submitted to the program's director of graduate studies, the Dean of the Graduate School, and the student. A second defense is permitted if the student will be in good standing at the time of the proposed second defense. A second defense requires the approval of the program's director of graduate studies and the Dean of the Graduate School. If the student fails this second defense, or if a second defense is not permitted, the student's admission to the graduate program is terminated.

If the defense is satisfactory, then the dissertation in its final form is to be submitted electronically to the Graduate School by the announced deadline.

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Ph.D. Program
Required Committee Meeting Summary

Year	Semester	Meeting	Committee Composition
1	1	Program Committee	Advisor(s) + 2 faculty + Senior doctoral student
	2	Advisory Committee	Advisor(s) + 3 faculty + Senior doctoral student
2	3	(none)	
	4	Pre-prelim	Advisor(s) + 4 faculty (at least 2 from Biology in addition to advisor)
3	5	Prelim exam	Advisor(s) + 4 faculty (at least 2 from Biology in addition to advisor)
4 to 6	Any	Dissertation Seminar Dissertation Defense	Public Advisor(s) + 4 faculty (at least 2 from Biology in addition to the advisor(s), and 1 non-Biology)

E. REVIEW OF GRADUATE STUDENT PROGRESS

The Graduate Application and Review Committee is charged with the responsibility of reviewing each graduate student each year to insure that adequate progress is being made toward the completion of his or her degree program. The departmental time limits anticipate requirements of the Graduate School. Therefore, this review serves the additional purpose of identifying problems before they become a Graduate School matter.

At the end of each semester, the cumulative grade point average (GPA) is examined to determine whether or not the student has maintained a GPA of 3.0 in courses receiving graduate credit.

Once each academic year, the graduate office conducts an analysis of the student's progress toward the completion of the degree. The criteria for measuring progress toward the degree in addition to GPA are (a) completion of deficiencies for entrance to the graduate program (i.e., courses required for entry to the program which were not taken, or were taken, but not passed), (b) completion of any special requirements stipulated by the advisor, or program committee, (c) completion of specific degree requirements stipulated by the Graduate School or Department (e.g., 12 credits of BIOL899, Dissertation Research, for the Ph.D.), (d) compliance with all departmental timelines related to completion of the above requirements, (e) successful completion of the preliminary examination for the Ph.D., and (f) development of a thesis research plan, its conduct and successful completion, etc.

The graduate office then prepares a recommendation for each student, to be submitted to the Biology Graduate Faculty for their consideration and action. The four possible recommendations are:

1) RETENTION - for students who are making reasonable progress

2) PROBATION - for students who are not making reasonable progress (reasonable progress is defined as maintaining a 3.0 GPA, keeping to the degree timeline, and making research related progress)

3) ADMINISTRATIVE WARNING - for students who failed to comply with the Department's request for evidence of their progress (will become PROBATION, as above, if the requested materials are not submitted by the date specified)

4) CANCELLATION OF MATRICULATION - dismissal from the graduate program for students who are not making reasonable progress and have not fulfilled the Department's conditions for retention

The graduate office may not recommend PROBATION for a student without first consulting with the student's advisor (or alternate advisor). The student's advisor will be notified of the recommendation and will have the opportunity to act as the student's advocate at the meeting of the Graduate Faculty. If the advisor is not available for the meeting, the student's alternate advisor is contacted to act on his/her behalf. The Graduate Faculty will consider the student's case and will vote to approve, overturn, or modify the recommendation.

After the Graduate Faculty meeting, the Director of Graduate Studies notifies, in writing, all students who have been placed on PROBATION, ADMINISTRATIVE WARNING, or CANCELLATION OF MATRICULATION.

Waiver of Requirements and Extension of Time Lines

The Director of Graduate Studies has limited authority to waive or extend departmental requirements. The Director, at his or her discretion, may approve requests for such waivers or extensions or take the matter to the Biology Graduate Faculty. All such requests must be made well in advance of the requirement's deadline, in writing and co-signed by the student's advisor and committee (if appropriate). The Director cannot alter a condition imposed on the student by either an examining committee or by the Biology Faculty. Grade point average difficulties are appealable only to the Biology Faculty.

F. CHECKLIST FOR DEGREE REQUIREMENTS

To help you meet the Department's and Graduate School's requirements refer to the appropriate checklist below.

ALL STUDENTS:

___ 1. Meet with Program Committee during first semester

___ 2. Complete any deficiencies within two years

___ 3. Maintain a 3.0 GPA (grade point average)

___ 4. Submit a progress report to DOGS (Director of Graduate Studies) each Spring

___ 5. Submit application for diploma online (www.testudo.umd.edu)

NON-THESIS MASTER'S

___ 1. A total of 30 hours of course work at the 400-level or above

___ a. 18 hours at the 600-level or above
___ b. 16 hours in Biology (400-level or above)

___ 2. 3 courses in major area

___ 3. During the semester before the scholarly paper is to be written, meet with the advisor and an additional faculty member, who will serve as a second reader of the paper, to decide the area, topic and scope of the paper; file a form describing the results of this meeting with the Director of Graduate Studies.

___ 4. 1 scholarly paper

___ 5. Submit Master's Approved Program Form to Graduate School after approval by DOGS

___ 6. Submit Certification of Master's Degree form to the Graduate School

___ 7. Requirements for the degree to be completed within a three-year period

THESIS MASTER'S

___ 1. A total of 30 hours of credit at the 400-level or above

___ a. 6 hours of thesis research (799)
___ b. 12 hours at the 600-level or above (not counting 799)
___ c. 12 hours in Biology (400-level or above, not counting 799)

___ 2. Submit a research progress report each Spring

___ 3. Submit a research proposal to DOGS by the end of the 3rd semester

___ 4. Submit Master's Approved Program Form to Graduate School after approval by DOGS

___ 5. Submit committee nomination form to Graduate School after approval by DOGS

___ 6. Successfully defend thesis (oral examination)

___ 7. Submit approved thesis electronically to Graduate School

___ 8. Requirements for the degree to be completed within a three-year period

PH.D.

___ 1. A total of 30 hours of credit at the 400-level or above
___ a. A minimum of l2 credits of post-candidacy dissertation research (899)
___ b. 24 credits of 600 or above (can include credits of 898/899)

___ 2. Fulfill any special requirements of advisory committee

___ 3. Hold required committee meetings: one during first semester, one during second semester, and one the semester preceding the preliminary exam

___ 4. Submit a research progress report each Spring

___ 5. Submit a copy of your prelim proposal to DOGS

___ 6. Pass the preliminary exam within 2½ years following admission to the program.

___ 7. Apply for admission to doctoral candidacy within one week of passing prelim exam

___ 8. Submit committee nomination to Graduate School after approval by DOGS

___ 9. Present a seminar on the dissertation research

___10. Pass the final exam (oral defense of dissertation) within 3 years after completing prelims

___11. Submit approved dissertation electronically to the Graduate School

MANY OF THE ABOVE EVENTS MUST TAKE PLACE BY CERTAIN DEADLINES SPECIFIED BY EITHER THE DEPARTMENT OR THE GRADUATE SCHOOL. IT IS THE STUDENT'S RESPONSIBILITY TO KNOW WHEN THESE DEADLINES ARE AND TO SEE THAT THEY ARE MET. THE BIOLOGY GRADUATE OFFICE HAS YEARLY LISTS OF THESE OFFICIAL DEADLINES, AND THEY ARE AVAILABLE ONLINE (www.gradschool.umd.edu/deadlines).

III. BIOLOGY FACULTY, 2007-2008

PROFESSORS:

Gerald Borgia, University of Michigan, Ph.D. 1978. University of Maryland, 1980. Behavioral Biology.

Catherine E. Carr, University of California at San Diego, Ph.D. 1984. University of Maryland, 1990. Neurobiology.

Avis H. Cohen, Cornell University, Ph.D. 1977. University of Maryland, 1990. Neurobiology.

Marco Colombini (Associate Chair for Graduate Studies), McGill University, Montreal, Canada, Ph.D. 1974. University of Maryland, 1979. Membrane Biochemistry.

James M. Dietz, Michigan State University, Ph.D. 1981. University of Maryland, 1989. Conservation Biology and Behavioral Ecology.

Douglas E. Gill, University of Michigan, Ph.D. 1967. University of Maryland, 197l. Population Competition Ecology.

David W. Inouye, University of North Carolina, Ph.D. 1976. University of Maryland, 1976. Coevolutionary Biology.

William R. Jeffery, University of Iowa, Ph.D. 1971. University of Maryland, 1999. Developmental Biology.

Thomas D. Kocher, University of Colorado, Ph.D., 1986. University of Maryland, 2007. Molecular Evolution, Population Genetics.

J. Dennis O'Connor, Northwestern University, Ph.D. 1968. University of Maryland, 2002. Invertebrate Endocrinology.

Richard Payne (Chair), The Australian National University, Ph.D. 1982. University of Maryland, 1988. Molecular Biology, Sensory Physiology.

David Poeppel, Massachusetts Institute of Technology, Ph.D. 1995. University of Maryland, 1998. Cognitive Neurosciences.

Arthur N. Popper, City University of New York, Ph.D. 1969. University of Maryland, 1987. Sensory Physiology, Neurobiology.

Marjorie L. Reaka-Kudla, University of California, Berkeley, Ph.D. 1975. University of Maryland, 1976. Marine Behavioral Ecology.

Sara Via, Duke University, Ph.D. 1983. University of Maryland, 1997. Evolutionary Biology, Evolutionary and Ecological Genetics.

Gerald S. Wilkinson, University of California, San Diego, Ph.D. 1984. University of Maryland, 1986. Evolutionary Biology.

ASSOCIATE PROFESSORS:

Ibrahim Z. Ades, University of California, Los Angeles, Ph.D. 1976. University of Maryland, 1982. Cell Biology, Biochemistry.

Michael Cummings, Harvard University, Ph.D. 1992. University of Maryland 2003. Molecular Evolution, Bioinformatics, Computational Biology.

Michele R. Dudash, University of Illinois, Ph.D. 1987. University of Maryland, 1989. Plant Population Biology, Mating System Evolution, Demography.

William Fagan, University of Washington, Ph.D., 1996. University of Maryland, 2002. Conservation Biology, Community Ecology, Theoretical Ecology.

Charles B. Fenster, University of Chicago, Ph.D. 1988. University of Maryland, 1989. Plant Evolutionary Biology, Ecological Genetics.

Irwin Forseth, University of Utah, Ph.D. 1982. University of Maryland, 1982. Plant Physiological Ecology, Heliotropism, Nitrogen Metabolism.

William J. Higgins, Florida State University, Ph.D. 1973. University of Maryland, 1973. Cell Biochemistry.
Elizabeth Quinlan, University of Illinois at Chicago, Ph.D. 1993. University of Maryland, 2001. Molecular Neurobiology.
Kerry L. Shaw, Washington University in St. Louis, Ph.D. 1993. University of Maryland, 2000. Genetics, Behavior and Ecology of Speciation.
Sergei Sukarev, Moscow State University, Ph.D. 1987. University of Maryland, 1997. Biochemistry and Biophysics.
Sarah A. Tishkoff, Yale University, Ph.D. 1996. University of Maryland, 2000. Human Evolutionary Genetics.

ASSISTANT PROFESSORS:
Ricardo C. Araneda, Albert Einstein College of Medicine, Ph.D. 1997. University of Maryland, 2006. Sensory Neuroscience.
Alexa Bely, SUNY Stony Brook, Ph.D. 1999. University of Maryland, 2003. Developmental Evolution of Invertebrates.
Karen L. Carleton, University of Colorado, Ph.D., 1987. University of Maryland, 2006. Mechanisms of Speciation.
Cristian Castillo-Davis, Harvard University, Ph.D. 2003. University of Maryland, 2006. Genomics, Morphological Evolution, Bioinformatics.
Eric Haag, Indiana University, Ph.D. 1997. University of Maryland, 2002. Evolution of Development.
Matthew P. Hare, University of Georgia, Ph.D. 1996. University of Maryland, 2000. Population and Conservation Genetics of marine organisms.
Patrick Kanold, Johns Hopkins University, Ph.D., 1999. University of Maryland, 2007. Developmental Neurobiology.
Hey-Kyoung Lee, Brown University, Ph.D. 1997. University of Maryland, 2003. Cellular/molecular mechanisms of synaptic plasticity underlying memory formation; synaptic function in mouse models of Alzheimer's disease.
Jonathan Simon, University of California, Santa Barbara, Ph.D. 1990. University of Maryland, 2001. Neural processing, auditory computation, neurophysiology.
Daphne Soares, University of Maryland, Ph.D. 2002. University of Maryland, 2006. Evolutionary Developmental Neurobiology.

SENIOR LECTURERS:
Reid Compton [Associate Chair for Undergraduate Studies]
Robert Infantino
Jeffrey Jensen

INSTRUCTORS:
Penny Koines
Justicia Opoku-Edusei

LECTURER:
Pamela Lanford

RESEARCH ASSOCIATE PROFESSOR:
Kennedy Paynter, and Director, MEES Graduate Program

VISITING ASSOCIATE PROFESSOR:
Mardi Hastings

DISTINGUISHED UNIVERSITY PROFESSOR EMERITUS:
William Hodos

PROFESSOR EMERITI:
George Anastos
Eugenie Clark
John O. Corliss
A. James Haley
Richard Highton
Sidney K. Pierce

ADJUNCT FACULTY:
Michael Braun, Laboratory of Molecular Systematics, Smithsonian Institution, Washington, D.C.
Denise L. Breitburg, Smithsonian Environmental Research Center, Edgewater, MD
D. Wayne Coats, Smithsonian Environmental Research Center, Edgewater, MD
Robert Fleischer, National Museum of Natural History, Washington, D.C.
Anson Hines, Smithsonian Environmental Research Center, Edgewater, MD
Matthew Kelley, NIDCD, NIH
Devra G. Kleiman, Conservation Biologist, Chevy Chase, MD
Stephen O'Brien, National Cancer Institute, NIH
Christopher J. Platt, NIDCD, NIH
Michael Potter, Laboratory of Genetics, NCI, NIH
Elizabeth Zimmer, Laboratory of Molecular Systematics, Smithsonian Institution, Washington, D.C.

AFFILIATE FACULTY:
Charles Delwiche, Dept. of Cell Biology and Molecular Genetics, UMCP
Robert Dooling, Dept. of Psychology, UMCP
Fatimah Linda Jackson, Dept. of Anthropology, UMCP
Cynthia Moss, Dept. of Psychology, UMCP
Stephen Mount, Dept. of Cell Biology and Molecular Genetics, UMCP
David D. Yager, Dept. of Psychology, UMCP

AFFILIATE RESEARCH ASSISTANT PROFESSOR:
Joelle Presson

IV. ADMINISTRATIVE OFFICERS AND STAFF 2007-2008

	Office	Telephone
Chair: **Dr. Richard Payne**	1206 Biol/Psych	405-6884
Program Administrative Specialist: Ms. Lillian Rollins	1206 Biol/Psych	405-6884
Grants Research Coordinator Ms. Cynthia Muhammad:	1206 Biol/Psych	405-2822
Associate Chair for Graduate Studies: Dr. Marco Colombini	3276 Biol/Psych	405-6925
Admin. Asst.: Ms. Lois A. Reid	2231 Biol/Psych	405-6905
Associate Chair for Undergraduate Studies: Dr. Reid Compton	2229 Biol/Psych	405-6904
Admin. Asst.: Ms. Cecilia Jordan	2227 Biol/Psych	405-6904
Faculty Services Office: Ms. Karen Speorl	1210 Biol/Psych	405-6884
Director of Administrative and Business Services: Ms. Cathy Beard	0109 Biol/Psych	405-6894
Business Manager: Ms. Sue Anne Swartz	0111 Biol/Psych	405-3396
Accounting Associate: Patty Selby	0111 Biol/Psych	405-2237
Payroll Services: KeCia Harper	0111 Biol/Psych	405-1095
Biology Receiving and Departmental Services:		
Mr. Larry Shetler	0107 Biol/Psych	405-6874
Mr. James Parker	0107 Biol/Psych	405-6874
Associate Director of the Life Sciences Undergraduate Programs: Dr. Joelle Presson	1326A Symons	405-6892
Admin. Asst.: Ms. Linda Dalo	1322 Symons	405-6892

	Office	Telephone
Laboratory for Biological Ultrastructure, Director:		
Mr. Timothy Maugel	0240 Biol/Psych	405-6898
Animal Colony:		
Supervisor: Ms. Narbeth Thompson	4271 Biol/Psych	405-6950

V. BIOLOGY (BIOL) GRADUATE STUDENTS, grouped by Advisor

Advisor	Co-Advisors	Graduate Students	Degree Sought
Bely, Alexandra (Evolution of Development)		Nyberg, Kevin	PhD
Borgia, Gerald (Behavioral and Evolutionary Ecology)		Coyle, Brian	PhD
		Savard, Jean-François	PhD
	Dr. Fleischer	Zwiers, Paul	PhD
Carleton, Karen (Mechanisms of Speciation)		Smith, Adam	PhD
Carr, Catherine (Neurobiology)		Yan, Kai	MST
Colombini, Marco (Membrane Physiology)		Hersl, Jerome	PhD
		Perera, Meenu	PhD
		Samanta, Soumya	PhD
Cummings, Michael (Molecular Evolution, Bioinformatics)		Ayres, Daniel	PhD
Dietz, James M. (Conservation Biology and Behavioral Ecology)		Oliveira, Leonardo	PhD
Dudash, Michele (Plant Population Biology)		Barry, Kevin	PhD
	Dr. Fenster	Reynolds, Richard	PhD
Fagan, William (Conservation Biology, Community Ecology, Theoretical Ecology)		Larsen, Elise	PhD
Fenster, Charles (Plant Evolution/ Ecological Genetics)	Dr. Dudash	Reynolds, Richard	PhD
Fleischer, Robert (Evolutionary Genetics)	Dr. Borgia	Zwiers, Paul	PhD

Haag, Eric (Evolutionary Developmental Genetics)		Hill, Robin Cook Liu, Qinwen Woodruff, Gavin	PhD PhD PhD
Hare, Matthew (Population and Conservation Genetics)		Rose, Colin	PhD
Higgins, William J. (Cell Physiology)	Dr. Liu	Bui, Minh	PhD
Hines, Anson (Marine & Estuarine Ecology)	Dr. Reaka-Kudla	Rodgers, Paula	PhD
Inouye, David W. (Ecology)	Dr. Marra	Sarah Rockwell	PhD
Jeffery, William R. (Evolutionary Developmental Biology)	 Dr. Kelley	Hixon, Ernie Jacques, Bonnie	MS PhD
Kelley, Matthew (Developmental Neuroscience)	Dr. Jeffery	Jacques, Bonnie	PhD
Kocher, Thomas (Molecular Evolution, Conservation Genetics)		Murray, Maria	PhD
Palmer, Margaret (Ecology)		Laub, Brian	PhD
Poeppel, David (Cognitive Neuroscience)		Jenkins, Julian	PhD
Popper, Arthur N. (Sensory Physiology and Neurobiology)	Dr. Dooling Dr. Fay	Blumenrath, Sandra Meyer, Michaela	PhD PhD
Quinlan, Elizabeth (Molecular Neurobiology)		Montey, Karen	PhD
Reaka-Kudla, Marjorie (Coral Reef Ecology)	Dr. Hines	Rodgers, Paula	PhD

Shaw, Kerry (Genetics, Behavior, and Ecology of Speciation)		Grace, Jaime Lesnick, Sky	PhD PhD
Tishkoff, Sarah (Human Evolutionary Genetics)		Hirbo, Jibril Mortensen, Holly Pfeifer, Lisa	PhD PhD PhD
Via, Sara (Evolutionary and Ecological Genetics)		Malin, Justin	PhD
Wilkinson, Gerald (Behavioral Ecology and Genetics)	Dr. Moss	Wright, Genevieve	PhD