

# GRADUATE PROGRAM HANDBOOK

## DEPARTMENT OF MOLECULAR GENETICS

2018

The Ohio State University  
112 Biological Sciences Building  
484 West 12th Avenue  
Columbus, OH 43210-1292 USA

Telephone 614-292-8084  
Facsimile 614-292-4466

[www.molgen.osu.edu](http://www.molgen.osu.edu)

## Preface

This handbook contains guidelines and information for graduate students and faculty in the Molecular Genetics Graduate Program; it has been prepared by the Graduate Studies Committee (GSC). Key provisions have been discussed and approved by a vote of the graduate faculty of the Department.

Throughout the handbook, reference is made to the Graduate School Handbook, available at

<http://www.gradsch.ohio-state.edu> .

Departmental guidelines define or extend Graduate School policies, particularly with regard to rules for Candidacy and Dissertation Exams, as well as maintenance of good academic standing. In unusual circumstances not explicitly addressed in this handbook, students should turn to the GSC for advice. These guidelines may be modified and are subject to change.

## Table of Contents

Program Overview	3
Graduate Studies Committee	3
Ethics	3
Overview of the typical graduate student experience	4
Lab rotations	4
Coursework	5
A special note to international students	6
Seminars and Research Presentations	7
Student Advisory and Exam committees	7
Teaching	8
Candidacy Exam	8
Dissertation	11
Maintenance of Good Academic Standing	12
Graduate Associate Appointments	13
Admissions	14
Master's Degree	14
Graduate Faculty Membership	15

## **Program Overview**

The Department resides within the Division Natural and Mathematical Sciences of the College of Arts and Sciences. The Graduate Program offers a course of study leading to the Ph.D. degree. In rare cases, students leave the program with a Master's degree.

Research in faculty laboratories addresses fundamental questions in molecular, cellular, and developmental biology, using genetic approaches. A wide range of model organisms is employed in the ongoing research. The goal of the Program is to train scientists for careers in academia, government, or industry.

## **Graduate Studies Committee**

The Graduate Studies Committee (GSC) oversees and administers the Program and is the liaison between the Graduate School and the Department. Actions of the Committee are subject to approval by the faculty of the Department. The GSC is responsible for formulating and administering rules of the Program concerning faculty membership, student admission, transfer and registration, as well as the requirements for the Ph.D. and M.S. degree programs.

The GSC consists of at least three members of the graduate faculty of the Department, one of which serves as the Chair. GSC members are appointed annually by the Chair of the Department, in consultation with the faculty.

Committee members for the 2018-2019 academic year are:

Robin Wharton, Professor, Chair of the Committee  
Susan Cole, Professor  
Aman Husbans, Assistant Professor

This handbook is available on the Departmental website:

[www.molgen.osu.edu](http://www.molgen.osu.edu)

## **Ethics**

Appropriate ethical standards are at the core of the training mission of the program, since transparent and honest presentation, evaluation, and criticism of experimental results constitute the foundation of scientific research. In the preparation of Candidacy Exams, research presentations, scientific manuscripts, and dissertations, students are required to acknowledge ideas, figures, and conclusions of others in the field. These and other issues are addressed in MG

7600, which is required of students in the first year. Finally, University guidelines and policies regarding academic and research misconduct can be found at:

<https://gradsch.osu.edu/handbook/c-research-standards-and-misconduct>

## **Overview of the typical graduate student experience**

In year one, students focus on laboratory rotations and courses, both of which lay the foundations for independent research. In the Spring semester, students choose a thesis advisor and research topic for their dissertation. In year two, students finish course electives and serve as teaching assistants; teaching experience is useful in preparation for careers in academia and in oral presentations that are a critical aspect of research. Students are expected to complete the Doctoral Candidacy Exam by the end of the summer term of the second year. Students who fail to complete the exam by the end of the following term (fall of third year) will no longer be in good academic standing. The second year is particularly challenging, as students are required to balance the demands of coursework, teaching responsibilities, research, and preparation for the candidacy exam.

Beginning in the third year, each student presents his or her research annually in a formal talk to the Department. Throughout their entire course of study, students are expected to attend a number of seminar series. After completion of the Candidacy Exam, students focus on completing their thesis research project, ultimately preparing a doctoral dissertation. A successful dissertation depends on the generation of a significant body of original research; as such, there is no timeline for completion. Most students finish in approximately 6 years.

## **Lab rotations**

These are a critical aspect of the first-year experience-- an opportunity for students to explore different lab environments, scientific problems, and experimental systems with the ultimate goal of choosing a research topic and thesis advisor. Students do three seven- to eight-week rotations commencing shortly after the start of the Fall semester. Rotations are chosen with the advice and consent of the GSC. At the end of the third rotation, students and advisors "match," making mutual choices. In the rare case that students do not identify a thesis lab, a fourth rotation is permitted. It is imperative that an advisor be identified by the end of the fourth rotation. Although waivers are rarely granted, students may petition the GSC to do fewer than three rotations.

Department faculty present short talks to incoming students during the week before classes start in August. Students use these talks to generate a short list of faculty with which to meet and discuss rotation projects, informing the GSC of the four (or more) faculty on their short list. The first three rotations must be in

Department labs; one of these may be in the lab of an Adjunct Member. If desired, a fourth rotation outside the Department may be pursued with the consent of the GSC. Lab rotations are not directly tied to the academic calendar; thus students are expected to pursue research during breaks in the calendar when classes are not held.

While the primary goal of the rotations is to mutually introduce students, labs and advisors, rotating students are expected to engage fully in a semi-independent research project, acquiring necessary background knowledge and participating in lab meetings. Students make short presentations on their projects to the Department at the end of each rotation.

## **Coursework**

The second major aspect of the first year is coursework that is designed to lay foundations and expose students to a variety of experimental systems and approaches. The second year is transitional, with an increasing emphasis on research as well as teaching responsibilities. Thus, students have a reduced load of in-class coursework in year two, and typically none in following years.

Required courses are as follows.

### Year 1 Fall Semester

MolGen 5700 Systems of Genetic Analysis  
MolGen 5701 Molecular Genetics: DNA Transactions  
MolGen 7600 First Year Orientation  
MolGen 7800 Seminar Program  
MolGen 7780 Lab Rotations

### Year 1 Spring Semester

MolGen 5705 Advances in Cell Biology  
MolGen 5715 Eukaryotic Developmental Genetics  
Elective #1  
MolGen 7800 Seminar Program  
MolGen 7780 Lab Rotations

### Year 1 Summer Semester

MolGen 8999 Dissertation Research

### Year 2 Fall Semester

Elective #2  
MolGen 7800 Seminar Program  
MolGen 8999 Dissertation Research

### Year 2 Spring Semester

### Elective #3

MolGen 7800 Seminar Program

MolGen 8999 Dissertation Research

Students are strongly encouraged to enroll in GSBP 7070 (Fundamentals of Grant Writing) in the fall semester of year 2, as a prelude to preparing the written portion of the candidacy exam.

Following is a list of electives commonly chosen by Department students. Students must petition the GSC to register for any course not on the list.

BMI 5730 Intro to Bioinformatics

BMI 8150 Rigorous and Reproducible Design and Data Analysis

BSGP 7070 Fundamentals of Grant Writing

CBG 5700 Intro to Personalized Therapeutics & Pharmacogenomics

Micro 8050 RNA World

MolGen 5300 Cancer Genetics

MolGen 5623 Genetics and Genomics

MolGen 5630 Plant Physiology

MolGen 5650 Analysis and Interpretation of Biological Data

MolGen 7741 Molecular Biology and Pathogenesis of Viruses

MolGen 7807 Research Seminar: Post-Transcriptional Control

Students must maintain full-time status to remain enrolled in the Program. Before passing the Candidacy Exam, most students must enroll for a minimum of 8 credit hours in the Fall and Spring semesters and 4 hours in the Summer semester; students supported by a fellowship, are required to register for minimums of 12 (Fall and Spring) and 6 (Summer) credit hours. Students are responsible for registering for the appropriate courses in a timely fashion. For a detailed description of the enrollment requirements for maintenance of status and degree requirements, students are encouraged to consult the Graduate School Handbook.

The Program Administrative Assistant, Deborah Dotter, should be consulted for advice on enrollment prior to each semester.

### **A Special Note to International Students**

Students educated abroad may have a significant, additional course burden, mandated by Graduate School requirements for mastery of English as a Second Language (ESL). Incoming students are placed into ESL classes as a result of their performance on a placement exam administered before the start of the Fall Semester. Separate classes address spoken and written English. Students are strongly encouraged to attain sufficient mastery of ESL such that they pass a test of spoken English by the end of the Summer semester of year 1; this exam

ensures that students can be appointed as teaching assistants. Students are required to pass the exam by the end of the Fall semester of year 2; failure to do so results in a loss of Good Academic Standing.

## **Seminars and Research Presentations**

Attending seminars and learning to present research talks are vital aspects of graduate education. Students receive graded (S/U) academic credit for doing so, and are required to attend the following seminars:

- MG Departmental seminars
- Fourth-year student seminars (in the Spring semester)
- the Falkenthal Colloquium and Waller Lecture.

Students in years 3-5 are also required to attend practice fourth-year talks and provide feedback.

Students are also strongly encouraged to attend the Tuesday Life Science seminar series.

As indicated by its name, in year four students present 50 minute research talks in the Spring semester in the student seminar series. In years three and five, students give short 10-15 minute talks at the Falkenthal symposium that are similar in format to those given at national scientific meetings. Most students attend such meetings at least once in the course of their careers. To encourage the practice, post-candidacy students may apply once in their careers to the Chair of the GSC for a Berl Oakley Travel award, which provides up to \$500 for travel to a national or international meeting, provided they will make either an oral or poster presentation.

## **Student Advisory and Exam Committees**

Students typically choose an Advisory Committee, in consultation with their advisor, in the Fall semester of year two. The same Committee usually serves throughout the student's career for annual advisory meetings, as the Candidacy Exam Committee and the Dissertation Defense Committee. The Committee is comprised of the advisor (who is Chair of the Committee) and three other faculty. For the Candidacy Exam, at least three members must hold salaried appointments within the Department. If the student has taken the BSGP 7070 Grant Writing course, their faculty teacher in the course may not serve on the Candidacy committee. For advisory meetings and the Dissertation Defense, at least two members of the Committee must hold salaried appointments within the Department. Composition of all Committees is subject to approval of the GSC.

Post-candidacy students are required to hold a meeting of their Advisory Committee before December 19 in year 3 and annually thereafter. Although not required, students are strongly encouraged to hold a first meeting of the Committee before candidacy, in the Spring or early Summer of year 2; input from the Committee is most valuable when the thesis research project is in its nascent stages.

Occasionally, students may wish to change membership of the Committee, when the direction of their research changes, for example. Changes to the membership of the Committee are approved by the advisor and the GSC Chair. Composition of the Committee is recorded with the Graduate School for the Candidacy and Dissertation Exams.

In the event of conflict between the student and his or her advisor, the student may turn either to the Advisory Committee or the Graduate Student Committee for council. In very rare circumstances, students may be best served by changing research projects and advisors.

## **Teaching**

Students are required to teach for two semesters, one of which in an Introductory Biology course taught by CLSE; the other semester of teaching is usually in a Departmental course. This required teaching typically is done in the Fall and Spring semesters of the second year. As described by the Graduate School, serving as a Teaching Assistant is an apprenticeship meant to provide practical experience to complement formal classroom instruction and lab research; teaching should not interfere with reasonable progress toward the degree. In addition to preparing students who wish to pursue an academic degree, teaching develops skills useful for oral research presentations. International students must pass the ESL exam before serving as teaching assistants.

## **Rules for Candidacy Exams, Ph.D. degrees, and M.S. degrees**

Graduate School rules govern the administration of candidacy exams as well as written and oral exams required for the Ph.D. and M.S. degrees. These rules supersede any Departmental guidelines below, and students are strongly encouraged to consult the Graduate School Handbook for current regulations as they prepare for candidacy or to defend a degree.

## **Candidacy Exam**

Purpose. The Candidacy Examination is not only a test of the students' comprehension of the field of Molecular Genetics and allied areas of study, but also of the capacity to undertake independent research, and of the ability to think and express ideas clearly and succinctly. This is a rigorous examination that is composed of both written and oral portions.



Timing. Students typically defend their Candidacy Exam in either the Spring or Summer term of the second year. To meet this timeline, it is critical to have an approved exam topic early in the Spring semester. Students who fail to complete the candidacy exam by the end of Fall semester of year three will no longer be in Good Academic. Under extraordinary circumstances (e.g., change in advisor, serious illness), a petition to further delay the examination may be made to the GSC.

Role of the Advisory Committee. The Advisory Committee, chosen as described above, serves as the examination committees for both written and oral portions of the Candidacy Examination. If a member of the advisory committee is not able to participate in the candidacy exam, another MG faculty member, with the approval of the advisor and the GSC, may be recruited for the purpose of the candidacy exam.

### Examination Procedure

a. Selection of the Topic The student should identify a topic for the development of an original research proposal in consultation with the advisor and the advisory committee. The student should write and present a single page (with at least half-inch margins and 11-point font) outlining the goal of the research and the specific aims of the proposal. The Advisory committee has one week to unanimously approve the topic and general aims. This may be done either by email, or in a meeting. If not approved, the student will be asked to find another topic or to make major changes to the existing topic, and the process described above is repeated. Once the topic is approved, the student schedules an oral exam to be held 8 to 9 weeks later.

b. The Written Portion of the Examination Upon approval of the topic, the student will have 4 weeks to prepare a written proposal. The proposal should follow the guidelines for a grant submitted to a national funding agency, such as the NIH, NSF, or DOE and should conform to the structure for the relevant agency. The proposal (excluding abstract, specific aims, and references) should be no more than 15 pages double-spaced, with 1-inch margins including all figures and tables. The abstract, the specific aims page, any figure or table legends, and the references may be single-spaced. The document must be written in at least 12-point font. Figures legends may be single-spaced, but must be a minimum of 10-point font. Since additional material may not be included in an Appendix, the proposal must contain figures of sufficient size and quality to ensure legibility. The Abstract, Specific Aims and References (which should be cited in full, including all authors and titles) may be single spaced and are not included in the page limitations. All pages must be numbered.

c. Guidelines for Preparing the Proposal Sufficient information should be included

in the proposal to facilitate an effective review by committee members without requiring reference to the literature. The proposal should be specific, informative, and avoid redundancies. Brevity and clarity make the reviewer's job easier, and are an indication that the applicant is knowledgeable on the chosen subject. While the Background should be sufficient to convey the rationale for the proposal as well as a command of the relevant literature, this portion should not dominate the proposal: the primary focus should be on designing experiments to test hypotheses rather than reviewing the literature.

Students must cite literature they have used in the writing process. Each citation must include the names of all authors, title of the paper, name of the book or journal, volume number, page numbers, and year of publication. The proposal must be written entirely in the student's own words; quoting of published works (even if properly cited) is not acceptable. Students are strongly encouraged to read successfully-defended proposals before writing.

d. Faculty input. During preparation of the proposal, faculty input should be minimal. The work must largely represent the student's own thinking, and the student must be prepared to defend and justify the proposal. However, students are encouraged to solicit advice and criticism from other students or post-doctoral fellows. With the permission of the candidacy committee, students may use either a proposal developed in BSGP 7070 or a fellowship application as the basis of their candidacy exam, although the committee is free to require addition or substitution of a novel aim, absent from prior work.

e. Evaluation of the Written Proposal. A copy of the proposal is submitted to the Advisory Committee, who are given two weeks to formulate their evaluations. Each Committee member submits a written evaluation via e-mail to the advisor, who copies all such evaluations to other members of the Committee. After consultation among Committee members, the proposal is graded "Pass," "Pass with revisions," or "Fail," as follows.

Pass Presentation of a strong proposal, combining a well-designed, well-chosen, timely project with a well-designed and well-reasoned approach to the research. The proposal is appropriate for oral defense as written.

Pass with revisions Presentation of a fundamentally sound proposal containing flaws that, in the judgement of the committee, can be remedied during a two-week period of revisions. The proposal contains scientific errors in experimental design, poor organization or format, or confusing text (for example); but in the judgement of the committee, the flaws can be remedied. The student should modify the proposal within two weeks, meeting with specific committee members to discuss criticisms as necessary. The re-written proposal will form the basis for evaluation of the written component of the candidacy exam; no further faculty approval or input is required at this stage.

Only one round of revisions is allowed. Students who receive evaluations of

either "Pass" or "Pass with revisions" schedule the oral exam with the Graduate School within three weeks, allowing two weeks for revision and an additional week for faculty to read and evaluate the revised document. Students must file the appropriate form with the Graduate School at least two weeks prior to the scheduled oral defense date.

*Fail* A grade of fail will result if, for example, the proposal contains serious misconceptions or is fatally flawed; the basic premise or experimental approach is faulty; the experiments proposed are unreasonable or implausible; the proposal cannot be salvaged without major revisions. If one or more members of the Committee determine the proposal is unacceptable (Fail), the Committee meets with the student as soon as possible to discuss the evaluations. If, after further consideration, any member of the Committee continues to believe that an overall satisfactory performance on the Exam is unlikely, the student may be advised to forgo the oral portion. As stated in the Graduate School Handbook, should the student accept this advice they must present a written request to be allowed to waive the oral portion of the exam, in which case the committee registers a grade of U on the Report on the Candidacy Exam and submit a copy of the waiver request to the Graduate School. The student may choose to disregard such a recommendation, and proceed to the oral defense of the proposal, where the Committee will evaluate the written and oral portions of the exam in toto. In such cases, the Committee and student are strongly encouraged to consult rules of the University, which are described in detail in the Graduate School Handbook.

f. The Oral Examination The student should be prepared to begin the exam with a brief presentation (~ 10 minutes) that introduces the core ideas and approaches of the proposal. Questioning by the Committee may begin during this presentation, or be delayed until its' conclusion, as decided by the committee. The Oral examination will last for approximately two hours.

The written proposal serves as a backdrop for questioning of the student, but the oral examination must be sufficiently wide-ranging to permit an assessment of the student's overall knowledge of Molecular Genetics and allied fields. The oral examination should also test the student's ability to think and express ideas clearly. At the end of the examination, the committee will decide whether the student has passed the Candidacy Examination. The oral and written portions are considered one exam. It is possible that one portion could be unsatisfactory but other portions of the exam of sufficiently high quality to merit an overall satisfactory grade. Committee approval must be unanimous. If the committee decides that the student has failed the Examination, the Candidacy Examination committee "must decide whether the student will be permitted to take a second Candidacy examination and must record that decision on the Candidacy Examination Report form." If permitted, the student must then prepare an entirely new proposal and repeat the procedure outlined above. The Candidacy Examination Committee for a second examination must be the same as in the

first examination unless the Dean of the Graduate School approves a substitution. No student may take the Candidacy Examination more than twice; students who are judged unsatisfactory after two examinations are dismissed from the Program.

Following the exam, the Committee reports the outcome to the Chair of the GSC, and in the event of failure, to the Chair of the Department as well.

## **Dissertation**

As described in the Graduate School Handbook, the Ph.D. dissertation is "a scholarly contribution to knowledge in the student's area of specialization." In the field of Molecular Genetics, contributions to the field are directly reflected in research publications. Published papers are the most important indicator of productivity and original thinking; thus, students should strive to publish first-author papers in well-regarded journals. A dissertation should contain, at a minimum, work in one major first-author paper that has been published, submitted, or is on the verge of submission.

Before proceeding with preparation of the dissertation, the student calls a meeting of the thesis Committee, which determines whether the student is ready to write and defend. Many factors ultimately contribute to the length of time a student pursues experimentation before they have completed a significant body of research. Readiness to defend is determined by research accomplishments, not following a pre-determined timetable.

The nature of current research is that most students participate in collaborative research projects. However, the dissertation contains only the student's individual contributions to such projects, such that the document reflects the original thoughts and work of the Ph.D. candidate.

The final exam committee is augmented by an outside representative assigned by the Graduate School. The Committee is given finished copies of the thesis sufficiently in advance of the oral defense to allow time for reading and thoughtful consideration. This period is set by the Committee, but typically is about three weeks in advance of the intended defense date, allowing the Committee one week to approve the written document for defense prior to the two-week interval currently required by the Graduate School for scheduling the oral defense via GradForms.

The final oral exam consists of two parts. The first is a one-hour public seminar with announcements circulated to faculty and graduate students of the Department. Immediately following the seminar, the Committee meets with the candidate for approximately an hour to discuss the originality of the research, the independence of the candidate, and the ability of the candidate to interpret their work and place it in the broader context of the field.

As for the Candidacy Exam, a successful outcome requires unanimity. In the event of an unsatisfactory outcome, the Committee determines whether a second final exam will be permitted. In such circumstances, the Committee is encouraged to consult relevant portions of the Graduate School Handbook.

### **Maintenance of Good Academic Standing**

Students must remain in good academic standing or face dismissal from the Program. Academic standing is assessed by performance in graduate classes, timely preparation of the Candidacy Exam, and demonstration of reasonable progress toward the Ph.D. Poor academic standing results from:

- failure to maintain a GPA of 3.0
- for international students, failure to pass the ESL requirements by the end of the fall semester in the second year
- failure to hold the Candidacy exam before the end of the fall semester in year 3
- failure to hold a Committee meeting prior to December 19 of year 3, and annually thereafter
- failure to participate as a member of the audience or, commencing in year three, speaker in the various Departmental seminars
- poor research performance, resulting in receipt of an unsatisfactory (U) grade from the advisor in MolGen 8999
- excessive, unexcused absences

Students who fail to maintain an adequate GPA are placed on probation by the Graduate School. The consequences of probation are described at length in the Graduate School Handbook. Given the other requirements of the Program, students on academic probation at the end of the Spring semester in year 1 will have great difficulty working simultaneously to raise their GPA and carrying out their other responsibilities. As a consequence, such students will likely be dismissed from the Program. Students on probation are monitored closely by the GSC.

Although students are required to hold a thesis advisory meeting of their Committee by December 19 in year 3, they are strongly encouraged to do so during the second year.

Maintenance of an adequate GPA is monitored by the Graduate School, which acts administratively to place students on probation when appropriate. It is the joint responsibility of the student and the advisor to inform the GSC of other events that can lead a student into poor standing. Once informed of poor

standing, the GSC meets to gather information, issue an official warning, develop a plan for remediation, and inform the Graduate School.

### **Graduate Associate Appointments**

Students without Fellowships (either internal or external) receive financial aid in the form of Graduate Associate appointments, which consist of a stipend and waiver of University fees and tuition. Students are typically appointed as Teaching or Research Associates, and occasionally as Administrative Associates. Appointments are made annually, beginning in the Fall semester. No student in the Department is permitted to hold employment outside the University. Students who fail to maintain Good Academic Standing lose eligibility for appointment as a Graduate Associate.

Students holding appointments as Teaching Assistants should expect to be continuously present throughout the semester. Some courses require significant advance preparation; Teaching Assistants for such courses should also be available before the start of the semester and are encouraged to consult with instructors in advance.

Students are trainees and thus do not earn annual vacation time or sick leave. Students are excused for illness and personal emergencies at the discretion of the advisor or, in the first year, the Chair of the GSC. Students are granted two weeks of excused absence per year in addition to University holidays, by prior arrangement with the advisor.

### **Admissions**

International applicants must apply by November 30 and domestic applicants by December 15. Only applications received by November 30 can be considered for the University fellowships. Applications are considered only for admission in the Fall semester, except in extraordinary circumstances. Most components of the application can be submitted electronically to the Graduate School at

[http://admissions.osu.edu/grad/apply\\_online.htm](http://admissions.osu.edu/grad/apply_online.htm) .

Official GRE scores, TOEFL (or MELAB or IELTS) scores (if applicable), and transcripts are submitted to the graduate school.

To expedite evaluation of the application, unofficial transcripts and standardized test scores can be submitted directly to the Program via e-mail to

[molgen-gc@osu.edu](mailto:molgen-gc@osu.edu) .

Letters of recommendation can be submitted electronically via the Graduate Admission portal (above). If referees wish to submit hard copy letters of

recommendation, these should NOT be sent to the Graduate School, but rather mailed directly to the Department:

Graduate Admissions Committee  
Department of Molecular Genetics  
The Ohio State University  
112 Biological Sciences Building  
484 West 12th Avenue  
Columbus, OH 43210-1292 USA .

In general, admitted students are offered financial aid that includes payment of tuition and fees as well as an annual stipend of \$28,692 (as of September, 2018). Students awarded a University Fellowship receive a stipend supplement from the Department.

### **Master's Degree**

The M.S. degree is offered to students unable to finish the Ph.D. program or to students pursuing a joint B.S./M.S. program. Ph.D. students consult with their advisory Committee and the GSC Chair before changing their degree program status. Students may pursue either thesis- or non-thesis Master's degrees. The Master's degree must be completed within six years of entering the Ph.D. Program.

For the Master's degree, students must have completed 30 credit hours of courses, including all courses required in the first and second years of the Ph.D. program. Students must also be in Good Academic Standing in the Ph.D. program.

For the thesis-based Master's degree, students prepare a thesis as described in the Graduate School Handbook. The final examination is similar in format to that of the Ph.D. exam, except that the private meeting with the Committee following the student's seminar presentation to the Department typically lasts for approximately one hour. The Master's Exam Committee is composed of the advisor and two other members of the faculty.

For the non-thesis based Master's degree, the Exam Committee is composed of the advisor and either one or two other members of the faculty. The Exam format is set by the rules of the Graduate School.

Students may also earn a Master's degree on the basis of having passed the Ph.D. Candidacy Exam, as described in the Graduate School Handbook.

### **Graduate Faculty Membership**

Faculty with 50% or greater salaried appointment in the Department are eligible for appointment as Category M or P Graduate Faculty in the Department (as appropriate), provided they meet the qualifications described in the Graduate School Handbook. Faculty with less than 50% salaried appointment in the Department are eligible for Graduate Faculty appointment commensurate with the appointment in their home department of the University.

Regular, salaried faculty in other departments of the University or affiliated institutions (e.g., Nationwide Children's Hospital) may request a non-salaried appointment to the Department for the purpose of mentoring a graduate student member of the Program. Such individuals nominate themselves by submitting a CV to the Chair of the GSC for consideration at a meeting of the entire faculty, which votes on the nomination. The appointment of such individuals as Graduate Faculty ends when the mentored student leaves the Program.