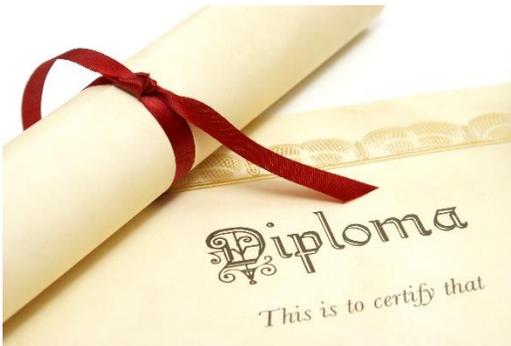


GRADUATE STUDENT HANDBOOK (2020-2021)



PROGRAM IN MOLECULAR GENETICS, BIOCHEMISTRY AND MICROBIOLOGY

College of Medicine
University of Cincinnati

Revised June 2020

Course elective options and health insurance information for Doctoral students have been updated and will apply to students entering July 2020. Students enrolling prior to July 2020 will follow the requirements in place at the time of their enrollment.

Graduate Education Committee
William E. Miller, Ph.D. Director of Graduate Studies
Program in Molecular Genetics, Biochemistry and Microbiology

Doctoral Program Requirement Checklist

- _____ Laboratory Rotation 1_____
- _____ Laboratory Rotation 2_____
- _____ Laboratory Rotation 3_____
- _____ Thesis Advisor Approval
- _____ Dissertation committee selection
- _____ Completion of required course work
- _____ Elective course work completed (minimum 4 credit hours - completed by end of year 2 if possible)
- _____ Qualifying Exam (Part 1, Non-thesis, Spring Semester, Year 1)
- _____ Qualifying Exam (Part 2, Thesis, Spring Semester, Year 2)
- _____ Individual Development Plans (IDP) completed annually
- _____ Submit Admission to Candidacy form to Program Graduate Office for approval (by end of 3rd Year)
- _____ 3rd Year and beyond - meet with dissertation committee at least once a year
Date:_____
- _____ End of Year 4 or start of Year 5. Submit timeline of goals towards graduation to Dissertation Committee and Graduate Education Committee.

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I. GENERAL DESCRIPTION OF THE PROGRAM OF STUDY FOR THE Ph.D. DEGREE

The minimum requirement for a doctoral degree from the University of Cincinnati is three years of full-time graduate study, or its equivalent, of which the last year must be in residence in the University of Cincinnati or under the University's direction. Eligibility for graduation requires a minimum of 90 graduate credits, the last 30 of which must be completed at the University of Cincinnati. In no case will a degree be granted solely on the basis of the accumulation of the required number of credits. The Program will recommend students for degrees only after they have developed the necessary intellectual maturity and have fulfilled all other requirements of the Program and the Graduate Division. In the Program in Molecular Genetics, Biochemistry and Microbiology the period of time from first enrollment to admission to doctoral candidacy may not exceed three years. Ph.D. candidates are expected to complete all requirements for graduation within the following three years. A period of at least seven months must elapse between admission to doctoral candidacy and receipt of the degree.

The requirements of the Program of Molecular Genetics, Biochemistry and Microbiology are divided into two different areas: course work and dissertation studies. The required course work in the first and second years provides students with basic knowledge in the areas of Molecular Genetics, Biochemistry and Microbiology. Students also learn to critically evaluate research through a Graduate Seminar (Journal Club) course. Electives, taken in the first and second years, are required to provide more advanced knowledge in specific disciplines. In preparation for selecting a laboratory for their dissertation work, first year students are also expected to do two or three research rotations. Once students choose a laboratory, their dissertation research can begin.

The typical course of study to completion of the Ph.D. degree is outlined below. Students will spend the first year taking both required and elective course work. They will complete their formal course work by taking journal club and additional electives during their second year. Laboratory rotations taken in the first year prepare the student for choosing a thesis advisor by the end of the academic year. After a thesis advisor is chosen, the student will initiate Ph.D. research under the guidance of his/her advisor and a dissertation committee. The Dissertation Committee will be composed of at least five members, with the advisor as chair, and at least one member from outside the Molecular Genetics Department and two members from within the Molecular Genetics Department.

The Candidacy (Qualifying) exam is comprised of two parts. Part I, also known as the PreQual, is completed during the Fall Semester of the second year in which a written proposal on a topic not related to the student's thesis topic is prepared. This proposal is prepared concurrently with the Professional Development/Grant Writing Course, which teaches students the art of grant writing. Part I concludes with a meeting of three faculty from Molecular Genetics who review the proposal with the student and provide feedback. A passing grade in the Professional Development/Grant Writing course and completion of the meeting with the three Molecular Genetics Faculty will satisfy the requirements for "passing" Part I of the qualifier. Part II, also known as the Qualifier, is completed during the Spring Semester of the second year in which a written proposal on the student's thesis topic is presented to the faculty and dissertation committee, followed by an oral defense of the proposal. Completion of Part II combined with

completion of all required and elective coursework qualifies the student to advance to Candidacy. Once Candidacy has been achieved, each student's progress is reviewed by the Dissertation Advisor and Dissertation Committee at yearly meetings. More frequent meetings may occur if deemed necessary by the Committee. Graduation occurs after the student's dissertation is written, approved, and defended at an open Seminar.

II. COURSE OF STUDY

COURSE WORK

During the first two years, students take a variety of required and elective courses. Effective August 24, 2018, the course work component consists of the following **required courses**:

Molecular Genetics/Biochemistry Track

Molecular and Cellular Biology (Fall Semester, 4 credit hours)

*Microbiology and Immunology (Fall Semester, 3 credit hours)

*Biochemistry (Spring Semester, 3 credit hours)

*Immunology (Spring Semester, 2 credit hours)

*Mechanisms of Signal Transduction (Spring Semester, 2 credit hours)

*Chemistry, Structure, Biomolecules (Spring Semester, 3 credit hours)

Statistics and Experimental Design for Biomed Sciences (Spring Semester, 3 credit hours)*

Ethics in Research (Spring Semester, 1 credit hour)

Professional Development in Research/Grant Writing (Fall Semester, 2 credit hours)

Molgen Graduate Seminar/Journal Club (First three semesters, 5 credit hours)

Electives to Reach a Minimum of 23 Credits

* Students must take at least two of the five courses indicated with asterisks. After choosing two courses from this list, students must also choose additional course work to fulfill the 23 credit hour minimum. Additional courses may be chosen from this list of five courses, or students may choose from the Electives List (see page 12) after discussion with their chosen dissertation advisor.

Human Genetics Grouping (Track)

Molecular and Cellular Biology (Fall Semester, 4 credit hours)

Human Genetics (Fall Semester, 3 credit hours)

Human Medical Genetics (Spring Semester, 3 credit hours)

Advanced Human Genetics (Fall Semester, 3 credit hours)

Statistics and Experimental Design for Biomed Sciences (Spring Semester, 3 credit hours)*

Ethics in Research (Spring Semester, 1 credit hour)

Molgen Graduate Seminar/Journal Club (First three semesters, 5 credit hours)

Electives to Reach a Minimum of 23 Credits

*An approved statistics course can be substituted

ELECTIVES

These courses undergo continual evolution. Several appropriate elective courses are offered by other Programs and these may be explored by students. Such courses may fulfill the elective requirement; however, approval by the Graduate Program Director is required **prior** to registration for outside courses.

Students will complete elective classes (hours are variable; the total number of didactic course credits, including journal club must equal 23 credits or more). These should ideally be completed by the end of year 2 but may be completed later if necessary. However, a student cannot advance to candidacy without completing the elective requirement. *A student should consult with the Graduate Program Director for the selection of elective classes. The student's advisor, once selected, should also be consulted on appropriate electives.*

NOTE: It cannot be ruled out that a student might complete the Program elective requirement but join a lab where the advisor requires them to take an additional course or courses which will benefit the student's thesis research.

TYPICAL DOCTORAL PROGRAM (Molecular Genetics/Biochemistry Track) – July/August start date

YEAR 1

<u>Course Title</u>	<u>Course Number</u>	<u>Credit Hours</u>
<u>Summer Semester</u>		
Laboratory Rotation	MG9003	1
<u>Fall Semester</u>		
Molecular & Cellular Biology	GNTD7001	4
*Microbiology and Immunology	MG7003	3
Graduate Seminar/Journal Club	MG7010	2
Lab Rotation	MG9003	<u>6</u>
		Total 15 credit hours
<u>Spring Semester</u>		
*Biochemistry	MG7002	3
*Immunology	MG7023	2
*Mechanisms of Signal Transduction	MG7024	2
*Chemistry/Structure of Biomolecules	MG7025	3
Graduate Seminar/Journal Club	MG7011	2
Ethics in Research	GNTD7003	1
Elective Courses	Various	0-4
Lab Rotation	MG9003	<u>2-7</u>
		Total 15 credit hours

*Students must take 2 of the 5 listed courses.

Additional requirements for Year 1:

- At end of the first year, students must meet with the assigned advisor for the class of students (usually the Graduate Program Director) and designate a thesis advisor for the dissertation research (requires approval by Molgen Chair).
- All students are required to attend the Molecular Genetics Departmental Seminar Series on Tuesdays at 12:00 p.m. A signup sheet will be provided. All absences must be approved/documentated beforehand. Any student repeatedly having unexcused absences will be required to meet with the Program Director and/or Department Chair.
- The thesis advisor is expected to be chosen by end of the Spring semester. Students are required to participate in continuous rotations during the 1st year until a thesis advisor is selected. Students should work full time on their rotation project outside of regular class hours. After selecting a thesis advisor, students should complete the "Dissertation Advisor Approval" form and send to Graduate Program Director indicating the chosen advisor; the form should be signed by the student, the dissertation advisor and the Chair of the Molecular Genetics Department.
- An individual development plan (IDP) for first year students should be completed in collaboration with the dissertation advisor at the end of the first year.
- By August 1: Non-OH residents who are US citizens or permanent residents should file Request to Change Residency for Tuition Purposes form with Student Records Office (see Graduate Program Coordinator for further information. Information in Section VIII of graduate manual). KY residents are exempt from changing residency if they qualify for tuition reciprocity.
- Promotion to the second year of study is approved by the Graduate Education Committee and depends on multiple factors including results/progress of classwork and rotation reports.

YEAR 2 (Molecular Genetics/Biochemistry Track)

<u>Course Title</u>	<u>Course Number</u>	<u>Credit Hours</u>
<u>Fall Semester</u>		
Graduate Seminar: Journal Club	MG7010	1
Dissertation Research	MG9001	1-12
Prof. Develop./Grant Writing	MCP8001	2
Elective Courses		<u>0-4</u>
		Total 15 credit hours
<u>Spring Semester</u>		

Dissertation Research	MG9001	11-15
*Statistics and Expt Design	P8050C	3
Elective Course(s)		<u>0-4</u>
		Total 15 credit hours

*An approved statistics course can be substituted

Additional requirements for Year 2:

- All students are required to attend the Molecular Genetics Departmental Seminar Series on Tuesdays at 12:00 p.m. A signup sheet will be provided. All absences must be approved/documentated beforehand. Any student repeatedly having unexcused absences will be required to meet with the Program Director and/or Molecular Genetics Department Chair.
- After approved selection of dissertation advisor, each student should begin selecting a Dissertation Committee in consultation with their advisor. An e-mail should be sent to the Graduate Program Director listing members of Dissertation Committee prior to beginning work on the second part of the qualifying examination.
- Complete the non-thesis-based PreQual (Part I) during the Fall Semester.
- Complete the thesis-based Qualifier (Part II) during the Spring Semester.
- Elective courses (hours are variable) must be taken prior to admission to candidacy. These courses may be taken at any time during the first three years, however, it is strongly recommended that they be completed by the end of the second year.
- Molgen-Molecular Genetics track PhD students must complete a minimum of 23 credits of coursework (not including Lab Rotations and Dissertation Research) during their tenure in the program.
- An individual development plan (IDP) for second year students should be completed in collaboration with the dissertation advisor and submitted at the student's first Dissertation Committee meeting.
- Promotion to the third year of study is approved by the Graduate Education Committee and depends on multiple factors including completion of Part I and Part II of the Qualifying Exam as well as results/progress of classwork.

TYPICAL DOCTORAL PROGRAM (Human Genetics Track) – July/August start date

YEAR 1

<u>Course Title</u>	<u>Course Number</u>	<u>Credit Hours</u>
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Summer Semester

Laboratory Rotation	MG9003	1
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Fall Semester

Molecular & Cellular Biology	GNTD7001	4
Human Genetics	GC7020	3
Graduate Seminar: Journal Club	MG7010	2
Lab Rotation	MG9003	<u>6</u>
		Total 15 credit hours

Spring Semester

Human Medical Genetics	MG7022	3
Statistics and Expt Design	MCP8050C	3
Graduate Seminar: Journal Club	MG7011	2
Ethics in Research	GNTD7003	1
Elective Courses	Various	0-4
Lab Rotation	MG9003	<u>2-6</u>
		Total 15 credit hours

*An approved statistics course can be substituted

Additional requirements for Year 1:

- At end of the first year, students must meet with the assigned advisor for the class of students (usually the Graduate Program Director) and designate a thesis advisor for the dissertation research (requires approval by Molgen Chair).
- All students are required to attend the Molecular Genetics Departmental Seminar Series on Tuesdays at 12:00 p.m. A signup sheet will be provided. All absences must be approved/documentated beforehand. Any student repeatedly having unexcused absences will be required to meet with the Program Director and/or Molecular Genetics Department Chair.
- The thesis advisor is expected to be chosen by end of the Spring semester. Students are required to participate in continuous rotations during the 1st year until a thesis advisor is selected. Students should work full time on their rotation project outside of regular class hours. After selecting a thesis advisor, students should complete the "Dissertation Advisor Approval" form and send to Graduate Program Director indicating the chosen advisor; the form should be signed by the student, the dissertation advisor and the Chair of the Molecular Genetics Department.

- An individual development plan (IDP) for first year students should be completed in collaboration with the dissertation advisor at the end of the first year.
- By August 1: Non-OH residents who are US citizens or permanent residents should file Request to Change Residency for Tuition Purposes form with Student Records Office (see Graduate Program Coordinator for further information. Information in Section VIII of graduate manual). KY residents are exempt from changing residency if they qualify for tuition reciprocity.
- Promotion to the second year of study is approved by the Graduate Education Committee and depends on multiple factors including results/progress of classwork and rotation reports.

YEAR 2 (Human Genetics Track)

<u>Course Title</u>	<u>Course Number</u>	<u>Credit Hours</u>
<u>Fall Semester</u>		
Graduate Seminar: Journal Club	MG7010	1
Advanced Human Genetics	MG8011	3
Dissertation Research	MG9001	7-11
Elective Course(s)	Various	<u>0-4</u>
		Total 15 credit hours
<u>Spring Semester</u>		
Dissertation Research	MG9001	11-15
Elective Course(s)	Various	<u>0-4</u>
		Total 15 credit hours

Additional requirements for Year 2:

- All students are required to attend the Molecular Genetics Departmental Seminar Series on Tuesdays at 12:00 p.m. A signup sheet will be provided. All absences must be approved/documentated beforehand. Any student repeatedly having unexcused absences will be required to meet with the Program Director and/or Molecular Genetics Department Chair.
- After approval of advisor each student should begin selecting a Dissertation Committee in consultation with their adviser. An e-mail should be sent to Graduate Program Director listing members of Dissertation Committee prior to beginning work on the second part of the qualifying examination.
- Complete the non-thesis-based PreQual (Part I) during the Fall Semester.
- Complete the thesis-based Qualifier (Part II) during the Spring Semester.

- Elective courses (hours are variable) must be taken prior to admission to candidacy. These courses may be taken at any time during the first three years, however, it is strongly recommended that they be completed by the end of the second year.
- Molgen- Human Genetics track PhD students must complete a minimum of 23 credits of coursework (not including Lab Rotations and Dissertation Research) during their tenure in the program
- An individual development plan (IDP) for second year students should be completed in collaboration with the dissertation advisor and submitted at the student's first Dissertation Committee meeting.
- Promotion to the third year of study is approved by the Graduate Education Committee and depends on multiple factors including completion of Part I and Part II of the Qualifying Exam as well as results/progress of classwork.

Electives Currently Available for Both Tracks

Fall Electives

	Elective (credit hours)
BE7015	Introduction to Global Health (3)
BE7076	Introduction to Epidemiology (2)
BE7084	Epidemiology of Infectious Disease (3)
BMIN7053	Introduction to Medical Informatics (3)
DB9085C	Introduction to Developmental Biology (3)
GC7050	Embryology (3)
GNTD8001C	Introduction to Functional Genomics (3)
GNTD8003	Career Opportunities for the Biomedical Scientist (2)
IMMU8088	Foundations of Immunology I (3)
MCBP8031	Pharmacology of Receptors (3)
MCP7000	Human Physiology (4)
MG8004C	Crystallography (3) offered during even years only
MG7003*	Introduction to Microbiology (3)
NS7078	Introduction to Neuroscience I (4)
PMM7001	Translational and Molecular Medicine in Hematology/Oncology (1)
PMM7004C	Medical Microbiology (3)

Spring Electives

	Elective (credit hours)
BMIN7099	Introduction to Bioinformatics (3)
BMIN7054	Data Science for Biomedical Research (3)
CB8080	Cancer Therapeutics (4)
DB9087	Development and Disease (2)
DB9088	Regulation of Gene Expression (2)
GC7011	Introduction to Cancer Genomics (2)
GC7050	Embryology (3)
GC7080	Teratology (2)
IMMU8089	Foundations of Immunology II (3)
MCBP9005	Metabolic Disorders (2)
MG7002*	Biochemistry and Metabolism (3)
MG7023*	Immunology (2)
MG7024*	Mechanisms of Signal Transduction (2)
MG7025*	Chemistry, Structure, and Therapeutic Applications of Biomolecules (3)
MG8010	Advanced Macromolecular Structure (1)
NS7079C	Intro to Neuroscience II (5)
PMM6010C	Medical Histology (3)
PMM8099	Immunology of Disease (2)

*Students in the Molecular Genetics Track must take 2 of the 5 courses indicated by asterisks. The others can be used to fulfill elective requirements.

YEAR 3 AND SUBSEQUENT YEARS (Both Molecular Genetics and Human Genetics Tracks)

<u>Course Title</u>	<u>Course Number</u>	<u>Credit Hours</u>
<u>Fall Semester</u>		
Dissertation Research	MG9001	12*
<u>Spring Semester</u>		
Dissertation Research	MG9001	12*

*Students who are supported by university resources for their stipends (e.g. Teaching Assistantships) are required to register for 12 credit hours per semester.

Additional requirements for Year 3 and subsequent years:

- All students are required to attend the Molecular Genetics Departmental Seminar Series on Tuesdays at 12:00 p.m. A signup sheet will be provided. All absences must be approved/documentated beforehand. Any student repeatedly having unexcused absences will be required to meet with the Program Director and/or Molecular Genetics Department Chair.
- Annual Meeting with Dissertation Committee - Students must meet with their Dissertation Committee **at least once** each calendar year, and at intervals not exceeding 12 months from the previous meeting. Committee Meeting Report and Dissertation Chair Forms are available from the Graduate Program Coordinator and should be distributed to committee members at the time of the meeting. A timetable for goals towards graduation must be presented and approved. Tuition and stipend is not guaranteed after five years of support in the graduate program. Approval must be obtained from the Dissertation Committee for stipend support in six month increments beyond the fifth year of graduate studies. Stipend support will not be offered beyond six years of study. Tuition and Health Insurance Benefits are also not guaranteed beyond the sixth year. Students in the fourth year and beyond are encouraged and may be required to have Committee Meetings every six months to provide additional guidance towards graduation.
- An individual development plan (IDP) for should be completed annually in collaboration with the dissertation advisor. The completed IDP should be submitted at the time of their Dissertation Committee Meeting and included with other reports from that meeting.
- Seminar Presentation - 30 minute oral presentation (i.e. 25 minute presentation with a 5 minute question and answer period) of research at Tuesday Seminar. Students should schedule a meeting of their Dissertation Committee after the seminar to discuss progress/future directions. The post-seminar meeting can be considered as their Annual Meeting with Dissertation Committee if all members can be present. The seminar presentation can be waived if a student can document that they will be defending their dissertation in the upcoming Spring or Summer Semester when the seminars are typically presented. Second year students will present their aims and dissertation project outline

after completion of their Qualifying Exam.

- Poster Presentation - Students who are in their 3rd year or beyond of doctoral studies are required to present at the College of Medicine Graduate Student Research Forum (GSRF) Poster Session held each year in October/November. Students who are unable to present at the GSRF (due to an approved conflict) will be required to present at another UC sponsored poster forum offered during the school year. Please consult with the Graduate Program Director to facilitate scheduling.
- Annual Meeting with representative of the Graduate Education Committee – This is to ensure that programmatic requirements are being met and that sufficient progress is being made towards graduation in a timely manner.
- Admission to Candidacy is required by end of Year 3. In the Program of Molecular Genetics, Biochemistry and Microbiology the period of time from first enrollment to admission to doctoral candidacy may not exceed three years. The following must be completed to be eligible for admission to candidacy: required course work, elective course work, and qualifying examination (2 parts).
- Students who have achieved candidacy can be asked to register for fewer credit hours in order to save on tuition costs (tuition support is limited to 174 semester credit hours). The appropriate procedures will be provided to students if this becomes necessary.

RESEARCH ROTATIONS

Laboratory research rotations are an important educational component in the first year of study in the Program of Molecular Genetics, Biochemistry and Microbiology. Graduate students gain research experience by conducting at least **two** rotations in the laboratories of faculty selected according to the student's interests. Ideally, students will enroll the summer before their 1st year to start rotations.

LABORATORY ROTATION SCHEDULE:

- Students beginning their graduate program in July will do Summer and Fall term rotations. A thesis advisor could be chosen by the end of Fall semester or the student may do a third rotation in the Spring semester prior to choosing a thesis advisor.
- Students beginning their graduate program in August will do rotations in the Fall and Spring semesters. A thesis advisor must be chosen by the end of the Spring semester.
- During the first year, students should either be doing a rotation or have chosen a thesis lab. No student should be pursuing a rotation-free or research-free semester
- In rare circumstances a student may join a lab directly upon entering the Molgen graduate program. In such a situation, a prearranged agreement between the faculty member and student is made and the student will not do any additional rotations. Such an arrangement has no effect on the required coursework, qualifying examination schedule, etc.

LABORATORY ROTATION EXPECTATIONS AND GRADING:

It is expected that a student will spend 8-12 weeks per rotation. During summer rotations it is expected that the student will be in the lab full-time or approximately 40 hours per week (8-10 weeks). During academic semester rotations, a minimum of 20 hours per week would be appropriate as the remaining 20 hours per week would be dedicated to coursework (10-12 weeks). Rotations can extend into the intersession time between semesters and the timing and placement of rotations should be in consultation with the Graduate Program Director and Coordinator.

During a rotation, more emphasis is placed on the process of science than on generating actual data. For example, in any particular experiment it is more important to understand the theory behind the methods being employed, to understand appropriate controls, and to effectively trouble-shoot problems, than it is to generate publishable data. Rotations are not to be extended simply to complete a series of experiments.

Students will be formally evaluated on a Pass/Fail basis with a written evaluation by the rotation advisor. All rotations will be graded even though the credit hours for the rotation may vary.

It is expected that students will devote considerable time and effort to their projects. Performance in the laboratory research rotations correlates well with actual thesis performance. Written assessments made by the individual faculty supervising a student's rotation are a significant component of the Program's promotion evaluations for first year students. As such, it is important that faculty and students communicate effectively during the rotation evaluations.

Students must also present a talk and a written report on one of their rotations in the Molgen Graduate Seminar/Journal course. This presentation will be open to the rotation advisor but not the faculty at large.

LABORATORY ROTATION EXEMPTIONS:

Students entering with advanced status (for definition, see Appendix C), significant prior research experience, and a specific plan for dissertation research with an individual faculty member, may be exempt from rotations providing that approval is given in writing at the time of admission. This requires written approval of the Graduate Studies Committee and a written statement from the specific faculty member involved that he/she is willing to accept this individual into his/her laboratory.

SELECTION OF DISSERTATION ADVISOR

After completion of the required two to three rotations, the student is expected to have identified an area for his/her dissertation research and a faculty research advisor. This advisor must be a full member of the department's faculty, or one of the Graduate Program Affiliate Faculty. The size of each faculty member's research program depends upon several factors and not every faculty member will be able to accommodate new students during a given year. Selection of a faculty advisor should be coordinated through discussion with the Director of

Graduate Studies, and requires the approval of the Chair of the Molecular Genetics Department.

DISSERTATION COMMITTEE

After a dissertation advisor is approved, an e-mail should be sent to Graduate Program Director listing the members of his/her Dissertation Committee. The Graduate Division of the University will formally appoint this committee when the student has completed all requirements for admission to candidacy and submits the Admission to Candidacy form. Any changes in the dissertation committee must be submitted to the Graduate Division well in advance of application for graduation.

In the Program of Molecular Genetics, Biochemistry and Microbiology, it is required that a minimum of five members serve on the Ph.D. dissertation research committee.

- At least one member of the committee must be from outside the Department of Molecular Genetics, Biochemistry and Microbiology, and at least two members must be from within the Department.
- If the committee chairperson is a graduate program affiliate faculty member, at least two others must be full-time faculty in the Department of Molecular Genetics, Biochemistry and Microbiology.
- Where special expertise on, or familiarity with, the dissertation topic is available in the person of a former faculty member or appropriate professional practitioner, such a person may be added to the basic dissertation committee (of at least three full-time faculty members) if he/she is nominated by the candidate and approved by the Chairperson of the Dissertation Committee and the Graduate Studies Committee. Such persons will be voting members of the dissertation committee. Furthermore, such persons must serve without compensation from either the University or the candidate.

Since the Dissertation Committee is an important and integral part of the graduate training program, every effort should be made to have regular committee meetings. All students should determine the makeup of their dissertation committee in the 2nd year as these faculty will comprise the qualifying examination committee. After the first formal committee meeting (at the conclusion of the qualifying exam), the student must periodically meet with his/her Dissertation Committee at intervals not exceeding 12 months, and more frequently if deemed appropriate by the faculty advisor or the Director of Graduate Studies. It is the responsibility of the student to organize and schedule Dissertation Committee meetings. However, any member of the Dissertation Committee may request that a meeting be held. If such a request is made, the committee chairperson will poll the committee members and at the recommendation of a majority of the members will schedule a meeting as soon as possible. Following each Dissertation Committee meeting, the dissertation advisor and student will forward a report form to the Director of Graduate Studies stating briefly the date of the meeting, the progress achieved and decisions made, who was in attendance, and the record of voting as to the student's satisfactory or unsatisfactory progress. The Graduate Studies Committee will keep a

record of these meetings. Students in the fourth year and beyond are encouraged and may be required to have committee meetings every six months to provide additional guidance towards graduation.

Dissertation committee meetings are not exams. The meetings allow the student and committee members to exchange information with the goal of producing significant advances in scientific understanding. The knowledge and experience of the committee members can greatly assist the student toward efficiently completing their dissertation research.

QUALIFYING EXAM (see Appendix A for proposal format guidelines)

In the Program of Molecular Genetics, Biochemistry and Microbiology the qualifying examination towards admission into candidacy for the Ph.D. degree is a two-step process; both steps involve the successful defense of a written research proposal. The purpose of the process is to provide training to students towards formulating and writing successful research grant proposals. The Part I (non-thesis based proposal or "Prequal") has a major instructional component where faculty have input throughout the development of the proposal. The Part II (thesis based proposal) focuses on the area of the each student's dissertation work which is presented to the dissertation committee.

Part I (Non-thesis based proposal) (Molecular Genetics/Biochemistry Track)

- Part I (also known as PreQual) will take place in the Fall semester during the second year.
- The main objective of the Part I process is to prepare for the more rigorous examination by the dissertation committee for the Part II thesis-based proposal.
- The writing of the proposal will follow the timing put forth in the MCP8001 Professional Development/Grant Writing Course.
- Instruction and feedback will be provided on research grant writing throughout this process by MCP8001 faculty as well as by the Molgen Graduate Education Committee Representative assigned to oversee the PreQual exams.
- By the end of the Fall Semester, the students will prepare a 6 page mini-proposal comprised of a well-defined hypothesis and 1-2 aims on a topic not related to their thesis project (See Appendix A for the grant format).
- This proposal should be innovative and exploratory in nature and should showcase creativity expected of a pilot proposal similar to the R03/R21 format. The topic may include any area related to Molecular Genetics, Biochemistry, Microbiology, or Immunology, but not directly based on the student's proposed thesis research.
- The student will submit their preliminary set of abstract, hypothesis and aims to the course directors of the MCP8001 class according to a schedule determined at the beginning of the semester. Students are expected to comply with the deadlines and to incorporate the critiques provided by the course faculty. The abstract, hypothesis and aims should also be presented to the Molgen Graduate Committee Representative to insure that they are compliant with the breadth and depth expected by the Molecular Genetics Graduate Program.
- At the conclusion of the MCP8001 class, students should make any necessary changes based on feedback from course faculty and submit a final version to the Molgen Graduate Committee Representative.
- A committee consisting of 3 Molgen faculty members (one of which will be the above mentioned Molgen Graduate Committee Representative) will be assigned to all students taking the examination that year. The committee of 3 will review the document and meet with the student to discuss how well the proposal was developed and what improvements should be made prior to embarking on the 2nd part of the Qualifying Exam.
- A passing grade in MCP8001, compliance with submitting a finalized version to the Molgen Representative, and meeting with the Committee of three will be considered "Passing of the Prequal".

- The Prequal committee can request a meeting with the advisor and the Graduate Program Director in cases where the student's progress is deemed unsatisfactory based upon the overall performance in the Part I process. This meeting can be used to determine the next steps for remediation or to recommend dismissal from the program.

Part II (Thesis-based proposal) (Molecular Genetics/Biochemistry Track)

- The second step of the qualifying exam takes place during the Spring Semester of the second year.
- The Candidacy exam is in the form of a written research proposal on their major dissertation project (See Appendix A), followed by an oral defense of the proposal.
- The proposal must be approved by the thesis advisor and certified to be distinct from grant proposals written by the dissertation advisor. The overarching theme of the grant proposal may be similar to the aims proposed by the dissertation advisor but must be distinct and not simply a rewritten version of the advisor's grant.
- The proposal should be written entirely by the student and the advisor should not play any role in the formulation of specific aims, experimental design or proof-reading of the proposal.
- The thesis-based proposal has a 12-page limit for the Background/Significance and Experimental Design section and should be comprised of three specific aims typically.
- The first one or two aims should be based on what the student is working on in the laboratory and can include preliminary results. These aims should be in depth and demonstrates thorough understanding and justification of the experimental approaches used.
- The proposal should include at least one aim that is exploratory and extends the ongoing work in the laboratory beyond any proposed work on the advisor's grant(s). This/these aim(s) will not necessarily be part of the dissertation research but should be reflect the student's own creativity and originality.
- The examination committee will be comprised of five members who will most likely comprise the dissertation committee once candidacy has been achieved. The chair of the examining committee will be appointed by the Graduate Program Director and will be distinct from the primary dissertation advisor. The composition of the committee will follow the rules for the Dissertation Committee as described previously. The members of the examining committee should be determined in consultation between the student and the dissertation advisor and approved by the Graduate Program Director to ensure that the composition of the committee meets with all of the university and Programmatic requirements.
- The Abstract and Specific Aims are due in Mid February/Early March at a date determined by the Graduate Program Director in consultation with the Graduate Committee to ensure that sufficient time is given to allow for completion and meetings associated with Part I/PreQual.
- The student will present the abstract and specific aims of the proposal to the committee at a preliminary meeting at the earliest possible date after the document is received.
- The complete proposal that incorporates the comments from the preliminary meeting is due four weeks after the approval of the specific aims.

- An examination date will be scheduled no sooner than one week after the due date for the completed proposal.
- Once the committee has provided their comments at the preliminary meeting, faculty members should not be asked to further review drafts of the full proposal.
- Students are encouraged to seek help, comments, and advice from their fellow graduate students, post-doctoral fellows and other colleagues inside or outside of the University of Cincinnati.

Optimally, Part II will be used as the basis for future fellowship applications to support graduate studies.

Part I (Non-thesis based proposal) (Human Genetics Track)

- The main objective of the Part I process is to prepare for the more rigorous examination by the dissertation committee for the Part II thesis-based proposal.
- The MG8011 (Advanced Fundamentals in Human Genetics) course has a grant writing component that will replace the MCP8001 class for the development and writing of Part I for Human Genetics Track students. Students are expected to comply with the deadlines and to incorporate the critiques provided by the course faculty. The abstract, hypothesis and aims should also be presented to the Molgen Graduate Committee Representative to insure that they are compliant with the breadth and depth expected by the Molecular Genetics Graduate Program.
- At the conclusion of the MG8011 class, students should make any necessary changes based on feedback from course faculty and submit a final version to the Molgen Graduate Committee Representative.
- A committee will consist of 3 Molgen faculty, one of which will be the above mentioned representative from the graduate committee assigned to all students taking the examination that year.
- The committee of 3 will review the document and meet with the student to discuss how well the proposal was developed and what improvements should be made prior to embarking on the 2nd part of the Qualifying Exam.
- A passing grade in MG8011, compliance with submitting a finalized version to the Molgen Representative, and meeting with the Committee of three will be considered "Passing of the Prequal".
- The Prequal committee can request a meeting with the advisor and the Graduate Program Director in cases where the student's progress is deemed unsatisfactory based upon the overall performance in the Part I process. This meeting can be used to determine the next steps for remediation or to recommend dismissal from the program.

Part II (Thesis-based proposal) (Human Genetics Track)

- This is the same format as in the Molecular Genetics/Biochemistry track.

DEFENSE OF PART II (THESIS-BASED PROPOSAL)

Part II will be defended at a meeting of the student's Dissertation Committee. Although the dissertation advisor is present at the meeting and is allowed to ask questions, he/she should not be answering any questions that are directed towards the student. The dissertation advisor can be asked to leave the room during the discussion of the examination outcome by the committee. A second member of the Dissertation Committee (elected by the committee) will serve as the Chair of the Qualifier Defense Committee.

After the qualifying examination committee is finished with the oral defense of the proposal, the committee will vote to pass, conditionally pass, or fail the student on the exam. A conditional pass may involve oral and/or written remediation of small sections of the proposal. If the committee feels that a significant portion of the proposal is indefensible, and/or that the student has demonstrated substantial and important gaps in their knowledge of scientific topics or concepts pertinent to the proposal, then it will necessarily deem the defense to merit a failing grade. It is the responsibility of the Chair of the examining committee to communicate the results of their joint deliberations to the student both orally and in writing, and to arrange the details of remediation as warranted. In addition to determining whether the student has passed the qualifying examination, a complete evaluation of the scientific, writing and presentation skills will be provided to the student and the advisor. Each committee member will complete an evaluation form of the written proposal and oral defense (Appendix A).

Students who have passed the qualifying examination will present their proposed dissertation work during the Graduate Student presentations at the Molecular Genetics Departmental Seminar Series at the end of the Spring semester or early in the Summer.

RETAKING THE QUALIFYING EXAM

If the thesis-based proposal (Part II) and/or the oral defense thereof was awarded a failing grade, one re-examination is allowed in the following summer semester. The examining committee and the Graduate Director will decide the format of the re-examination. If the student is unsuccessful with this re-examination, he/she will be automatically dismissed from the Ph.D. program.

III. CANDIDACY

REQUIREMENTS

Once the student has completed the formal course work requirements (maintaining the Programmatic minimum academic standards - see section V below), elective course requirements, candidacy (qualifying) examination, and has outlined and discussed their proposed dissertation research with their dissertation committee, he/she will be considered for candidacy for the Ph.D. degree. The Graduate Director reviews the student's performance and determines whether he/she should be admitted into candidacy. Criteria which are evaluated

are: a) academic performance in the classroom; b) research performance in the laboratory (as evaluated by faculty in whose laboratory the student worked); c) the recommendation of the proposal examination committee on the candidacy examination, and d) the recommendation of the dissertation committee. **It is important to note that the University of Cincinnati requires that a student have a GPA of 3.0 in graduate course work before he/she can be admitted into candidacy for the Ph.D. degree.**

HOW AND WHEN TO FILE FOR CANDIDACY

Once the student has been approved for candidacy by the Molecular Genetics Graduate Committee, he/she will be eligible to file an official application for candidacy. Applications for candidacy can be filed online by the Graduate Program Coordinator once the requirements are met. The student should file for candidacy as soon as possible after receiving approval by the Graduate Committee, and **at the latest by the end of year 3**. It is University policy that the student must file for candidacy at least seven months prior to his/her date of graduation. Students matriculating into the program starting on or after 2012 are given 6 years of candidacy to complete their doctoral degree. The university places a maximum of nine years for all students to obtain their doctoral degree. Students can be placed on reduced credit hours after candidacy has been reached in order to reduce tuition costs to the Program.

OTHER UNIVERSITY REQUIREMENTS

After admission into candidacy, registration and fee payment are required for at least one graduate credit hour in the Fall semester of each year in order for a student (not in residence) to maintain his/her candidacy status. Candidacy for the doctorate automatically terminates after six consecutive calendar years (see above). Candidates may petition the Graduate Council for extension of candidacy prior to its expiration or for reinstatement if candidacy has expired. Students will be required to register for at least one graduate credit during each semester (excluding summer semester) that they wish to use University resources, i.e., libraries, email accounts, student health insurance, university housing, campus laboratories, office space, equipment, recreational or computer facilities

IV. PREPARATION AND DEFENSE OF DISSERTATION

PREPARATION OF DISSERTATION

Prior to preparing his/her dissertation, the student must meet with the Dissertation Committee and come to an agreement on the format of the document. The University's specific requirements for publication of the dissertation and filing for graduation are described in Appendix B. All students are now expected to prepare their dissertation in electronic format. Guidelines for electronic thesis preparation are available on the graduate school website <http://grad.uc.edu/html> . It is expected that the student and thesis advisor will work closely in the preparation of the dissertation.

DEADLINE FOR SUBMITTING DISSERTATION

After consultation with the candidate and the candidate's dissertation committee, the Director of Graduate Studies will schedule a final defense. While we do not have a strict publication requirement before the defense of the dissertation, the vast majority of graduates will have two or more major publications resulting from their dissertation research. **Students must submit copies of their dissertation to the dissertation committee members two weeks (10 working days) prior to the scheduled defense.** If the thesis is not submitted two weeks prior to the scheduled defense, the defense will be rescheduled by the Director of Graduate Studies.

FINAL DEFENSE OF DISSERTATION

The student's final defense of his/her dissertation will be open to the public and all members of the academic community. You must have the approval of your dissertation committee before you can schedule a dissertation defense. A date must be set before you can apply for graduation online. Students must also provide the Molecular Genetics Program Coordinator with the title of their defense seminar two weeks prior so that the announcement can be posted and sent by email to the UC science community.

After presenting a formal seminar describing the findings documented by the dissertation, the candidate will answer pertinent questions put forward by members of the committee and other persons present. Subsequently, in a private meeting, the dissertation committee will then vote on the acceptability of the dissertation and its defense. At least 3/4 of the voting members of the dissertation committee must approve the dissertation.

V. EVALUATION OF ACADEMIC PERFORMANCE

The University requires that Programs and units set minimum academic standards and inform the University Dean of these in writing. These standards are subject to review by the University Dean and/or the Graduate Council.

PROGRAMMATIC GRADING POLICY

Students must maintain a "B" average (3.00 GPA) in all course work. Failure to maintain a "B" average at the end of the first year is potential grounds for immediate dismissal from the program. Students are expected to complete all required courses during the first year.

Grades of "C" or "F" are unacceptable in **required** courses. The student must repeat a **required** course in which a "C" or "F" was received and obtain at least a "B-" in the repeated course. A grade for any remedial work will be entered as a new grade on the transcript. Both the original course and grade and the new course and grade appear on the transcript and both the first and second (repeated course) grades are computed in the cumulative grade point average. Students are permitted one year to complete remedial work. If the student receives a C in an **elective** course, the course will not count toward their elective requirement. They may either retake the course or take another elective course. Elective course work must be approved by the student's advisor and the Graduate Committee.

The Graduate Committee regularly assesses the progress of each graduate student and will provide feedback regarding his/her academic course work and research. Each incoming student will meet with the Graduate Program Director at the end of each semester during the first year to evaluate progress. Students are encouraged to meet with the Graduate Program Director or laboratory mentor at any time during the first year when questions or concerns arise regarding their academic progress.

EVALUATION AT THE END OF THE FIRST YEAR

The formal decision by the graduate faculty at the end of the first year is the first of two formal decisions (the second coming at the end of the second year) on the potential or capability of the student to successfully complete the Ph.D. program and become a competent independent investigator. The formal evaluation is based on a student's overall performance including: a) grades in courses taken during the year, b) level of participation in the Graduate Seminar course, and c) an evaluation of research potential as evidenced from the research rotations.

Admission into the second year requires a positive evaluation indicating that, at this point in time, the student has demonstrated sufficient potential and is likely to successfully complete the second year. Failure to achieve a B average in required

courses or unsatisfactory performance in research is potential grounds for dismissal from the program. In addition, each student must pass the first step of the qualifying exam with a successful defense of their original proposal.

EVALUATION AT THE END OF THE SECOND YEAR

An evaluation by Program faculty is based on progress in research, performance in courses taken up to this time, and the candidacy exam (proposal). If progress is satisfactory, a student will be encouraged to proceed. In some instances, the student may be encouraged to pursue the Master's degree option (see below). Failure to pass the candidacy examination on two separate occasions is grounds for dismissal from the doctoral program.

SUBSEQUENT EVALUATIONS

A formal written evaluation of research progress, and maturity as a scientist will be made **at least once a year** following admission to candidacy (per University rules). This evaluation will be made by the dissertation committee. An Annual Graduate Student Evaluation Form should be completed by a representative of the Graduate Education Committee in consultation with the chair of the dissertation committee at the end of each academic year (August). Continued failure to meet goals as outlined by the dissertation committee are grounds for dismissal.

EVALUATION OF PROGRESS DURING YEAR 5

Students will provide an outline of their progress and timeline for completing their dissertation at their dissertation committee meeting either at the end of their fourth year of graduate studies or the beginning of their fifth year.

If a student is not likely to complete his/her degree requirements, including writing and defending the thesis, by the end of the fifth year, the Dissertation Committee will meet and evaluate the student's progress. The student and Dissertation Committee will develop a realistic plan for completing the thesis within an extended six-month period. If the progress to date and the plan to finish are determined to be appropriate, the Dissertation Committee will recommend that financial support be continued for up to six months. Financial support beyond this period will be provided only in exceptional situations and will be limited to one final six-month period. After six years of financial support the student may remain in the Program to complete the thesis with the approval of the Dissertation Committee, but stipend support will no longer be provided (a leave of absence without financial support will not count toward this time limitation). Students no longer receiving stipend will be required to register for one hour of credit per year in order to maintain their candidacy and continue to use University resources, (excluding summer semester), i.e., libraries, email accounts, student health

insurance, university housing, campus laboratories, office space, equipment, recreational or computer facilities.). This policy emphasizes the shared responsibilities and the appropriate application of these responsibilities to encourage and facilitate the efficient and timely completion of the Ph.D.

MASTER' DEGREE OPTIONS FOR DOCTORAL STUDENTS

Under exceptional circumstances, students in the doctoral program who elect not to continue with their studies may be awarded a master's degree in recognition of their completion of a substantial body of work in both their studies and/or research. It is the responsibility of the student's Dissertation Committee to determine whether such exceptional circumstances exist, and to recommend the awarding of a master's degree. For students who have been supported financially by the Program through GA and/or UGS funding the following options exist for the awarding of a Master's degree:

Non-thesis Master's

A non-thesis Master's may be awarded to a student who has:

1. Completed all required courses in the doctoral program with at least a B average.
2. Successfully completed the doctoral candidacy examination.
3. Received a statement from his/her Dissertation Committee/advisor recommending that a Master's degree be awarded.

Thesis Master's

A thesis Master's may be awarded to a student who has:

1. Completed all required courses in the doctoral program with at least a B average.
2. Submitted an approved Master's thesis. The student's Dissertation Committee will judge the Master's thesis with respect to form and content.
3. Received a written statement from his/her Dissertation Committee recommending that a Master's degree be awarded.

VI. MASTER OF SCIENCE DEGREE PROGRAM

There are two formally recognized programmatic tracks towards the acquisition of a Master of Science degree in the Program of Molecular Genetics: a laboratory track and a non-laboratory track. The laboratory track requires a laboratory-based thesis, whereas the non-laboratory track requires an extensive research literature-based thesis (see below). In both cases a minimum of 30 graduate credit semester hours must be obtained as a requisite for awarding of the degree, at least 23 of which have to be in formally designated course work. Formal course work is defined as any course taken for graduate credit for which the graduate student receives a letter grade of A, A-, B+, B, B-, C+, C, or F. Currently, neither the University nor the Program have funds earmarked for either stipend or tuition support (i.e., there are no GA or UGS funds available for this particular degree program).

GENERAL REQUIREMENTS

Molecular Genetics/Biochemistry Track (Full Time Students)

Students will commence their studies in the Fall semester of a given academic year. All students will be required to take three courses in the Fall semester (i.e., Molecular and Cellular Biology, Introductory Microbiology, and 1 credit hour of Graduate Seminar) and two courses in the Spring Semester (Biochemistry and Ethics in Research) for a total of 12 credit hours. Alternatives to these three courses are available by arrangement with the graduate program director. For students entering with appropriate graduate courses already successfully completed at another institution a maximum of 6 credit hours can be transferred (no additional credit awarded).

An additional 8 semester credit hours of electives should be completed in order to finish the course requirement. These can include electives offered within the Program or courses outside of the Program which are relevant - decisions as to the appropriate course work and academic load should be taken in consultation with the Graduate Program Director.

At the end of spring semester it is anticipated that students on the non-thesis track will have accumulated at least 23 hours of formal course work credit. Students on the laboratory track might not have reached this target owing to time spent in laboratory research experiences (see below). It is anticipated that such students will obtain the necessary 23 hours minimum total from additional courses taken during succeeding semesters.

Both Thesis and non-Thesis tracks must enroll in a minimum of 7 hours of the MS Research course. The total minimum credit hours (research and coursework) must be equal or greater to 30 hours.

Human Genetics Track (Full Time Students)

Students will commence their studies in the Fall semester of a given academic year. All students will be required to take three courses in the Fall semester (i.e., Fundamentals of Molecular Genetics, Human Genetics, and 1 credit hour of Graduate Seminar) and two courses in the Spring Semester (Human Medical Genetics and Ethics in Research) for a total of 11 credit hours. Alternatives to these three courses are available by arrangement with the graduate program director. For students entering with appropriate graduate courses already successfully completed at another institution a maximum of 6 credit hours can be transferred (no additional credit awarded).

An additional 9 semester credit hours of electives should be completed in order to finish the course requirement. These can include electives offered within the Program or courses outside of the Program which are relevant - decisions as to the appropriate course work and academic load should be taken in consultation with the Graduate Program Director.

At the end of spring semester it is anticipated that students on the non-thesis track will have accumulated at least 23 hours of formal course work credit. Students on the laboratory track might not have reached this target owing to time spent in laboratory research experiences (see below). It is anticipated that such students will obtain the necessary 23 hours minimum total from additional courses taken during succeeding semesters.

Both Thesis and non-Thesis tracks must enroll in a minimum of 7 hours of the MS Research course. The total minimum credit hours (research and coursework) must be equal or greater to 30 hours.

LENGTH OF PROGRAM

For students in both tracks it is anticipated that all requirements can be met in a total of 4 academic semesters, and in some cases 3 semesters of intensive study and/or research may suffice. It is anticipated that students will work on their laboratory research or literature-based research during the Summer semester even though formal registration may not be required during this semester (see below). In addition, students who have completed all of their coursework and research credit requirements have the option of registering for only one credit hour of MS Research in the 2nd year of graduate school to maintain active graduate status. The part-time status will trigger any student loan repayments and does not provide access to the recreation center as compared to the full-time status.

University rules require that full time students enroll for at least 10 credit hours each semester, (12 for international students) and for at least 2 semesters in an academic year. Formal summer semester registration will not be required for

students who are able to assemble the appropriate number of credits in excess of the minimum, therefore saving a considerable amount of tuition expenditure.

COSTS OF PROGRAM

Students accepted into the Master's program are responsible for the full costs of tuition as well as their individual living expenses. The Program receives no funding earmarked for the Master's program. Tuition costs for full-time registration (covering 10-18 hours of credit) can be found on the University's website.

ACADEMIC PERFORMANCE

In order to remain in good standing within the Program a B average in course work must be maintained, and at least 2/3 of all courses must be passed at the B- grade or better. Failure to have maintained a B average after the required 23 hours of coursework will be grounds for dismissal from the program.

NON-THESIS TRACK

In the non-thesis track, successful completion of a comprehensive regimen of course work (which may exceed the minimum of 23 hours) will be supplemented by the preparation of an extensive, well-written and scholarly literature-based document on an approved subject of cutting-edge research interest. In addition to the requirement for a minimum of 23 hours of formal course work credit, students will enroll in a "MS Research, MG9002" course (for which credit will vary) in which they will undertake the required written thesis. This document will be evaluated and graded by a committee of two faculty members (at least one of whom must be a member of the Graduate Faculty) appointed by the Director of Graduate Studies. Successful completion of this requirement, together with a sufficient accumulation of course work credit, should lead to the awarding of credit sufficient to reach the required minimum of 30 semester hours for awarding of the Master's degree.

THESIS TRACK

In the thesis track, in addition to the minimum 23 hour course work requirement, students will be expected to perform a 6-9 month long research project on an approved topic under the guidance of a faculty research mentor, followed by preparation of a formal thesis. The expectation that a productive laboratory experience will constitute an essential part of this track necessitates the identification of a suitable laboratory in which to perform a research project. This will normally be accomplished by the student partaking in short "laboratory rotation" experiences during the fall and/or spring semesters of the first year. These are each expected to last no more than 5-6 weeks of afternoon laboratory attendance. The purpose of these will be to expose students to working in a typical research laboratory environment, with the acquisition of suitable bench skills

appropriate for the performance of a 6-9 month research project commencing by the summer semester. Students will also be attempting to identify a suitable research mentor for this research phase of their study, and this may take more than a single "rotation" experience. There will, however, be no necessity for performing a second "rotation" if both the student and the initial research mentor find each other mutually compatible and agreeable to the prolonging of the "rotation" into the full research project required of students in this track. A three-person thesis committee, consisting of the research mentor and two other Program faculty (at least one of whom must be a member of the Graduate Faculty), will be appointed within one month of the initiation of the research project. It is anticipated that the project will be completed by the preparation and formal presentation of the thesis describing the approach, significance, results and conclusions obtained during the study.

PART TIME STUDY

At the discretion of the Director of Graduate Studies, students may be accepted into the Master's degree program on a part time basis. It is likely that this would be on the non-laboratory track only, since the research project required on the laboratory track would necessitate a full time commitment on the part of the student. Non-citizen and non-resident applicants cannot be accepted as part time students, since U.S. visa requirements require entry into a full time program of study. The maximum time to degree for the MS degree is five years.

VII. INSTITUTIONAL RULES, POLICIES AND PROCEDURES

**Records Privacy, FERPA, and the Right to Review
Discrimination
Academic Dishonesty
Student Code of Conduct
Research Misconduct
Restricted Research
Graduate Student Grievance Procedures**

All of the above items are described in the University Graduate Student Handbook from the University www.grad.uc.edu/content/dam/grad/docs/Publications/handbook.pdf.

VIII. ADDITIONAL PROGRAM REQUIREMENTS, POLICIES, AND OPPORTUNITIES

RYAN FELLOWSHIPS

These fellowships are awarded on a competitive basis by the College of Medicine to outstanding students with advanced standing, i.e., those who have completed all required coursework and have passed the candidacy/Qualifying examination. Besides recognizing outstanding scholarship, these awards provide students with an increased stipend. The Program encourages all students to apply for Ryan Fellowships. A notice regarding the upcoming annual competition is circulated to all qualified students in March or April of each year. The Graduate Studies Committee will assist the student and their advisor in the preparation of a Ryan Fellowship application (typically due in mid April).

SEMINAR PROGRAM/POST-SEMINAR COMMITTEE MEETING

Beginning during the third year of study and every year thereafter, students will present 30 minute oral presentations of their research. These presentations will be attended by all members of the Program and will be open to the public. Announcements concerning student seminars will be distributed throughout the University's scientific community. Immediately following this presentation, students should meet with their Dissertation Committee for their Annual Committee Meeting. If the student Committee is unavailable to meet directly after the Seminar, he/she should schedule a full committee meeting scheduled within one month of their seminar date.

PROGRAM AWARDS

The Program recognizes excellence among its graduate students by the awarding of prizes in several categories. There are prizes for Best Academic Performance among first year students and a Scientific Excellence award open to all students in the Program.

POSTER PRESENTATIONS

The College of Medicine holds a Graduate Student Research Forum (GSRF) in the Fall semester of each year, where students can present their research in poster format, and where awards and other forms of recognition are conferred. While all students are encouraged to submit posters describing their recent work, students in the third year or above are required to present posters at the Research Forum.

VACATION & LEAVE POLICY

It is expected that serious and dedicated students, working in a competitive research environment, will take no more than 2 weeks (10 work days) of personal vacation per year. Any student absent from the laboratory for more than 2 weeks per year needs written permission from his/her advisor. Students who have not yet chosen an advisor must receive written permission from the Director of Graduate studies. Written permission allowing extended vacations must be filed with the Director of Graduate Studies and/or the research advisor **prior** to the start of the vacation. A student shall not receive the stipend for any period of leave greater than 4 weeks. Under unusual circumstances this rule can be waived by consent from the student's faculty advisor. It should be noted that travel to and participation in scientific conference does not count as personal vacation and would not be counted towards the 2 weeks of personal vacation per year.

In the event that a student is granted international travel leave and due to visa and/or other issues, is away for more than 3 days beyond the pre-approved leave, the student's stipend will be suspended until such time that the student can fully return to the training program. Graduate students do not receive a "winter break" or "spring break" as an undergraduate program may. Graduate students are considered employees and must adhere to employee attendance policies as indicated by their mentor's department and/or financial source (ex: F-31 or T-32).

TEMPORARY ABSENCES (other than for illness)

A temporary absence provides for release time without pay for the graduate assistant from his/her obligations. Per University guidelines, the circumstances justifying a leave include personal or family medical conditions or a call to active military duty. Students are eligible for leave during their first three years of graduate study. An approved leave of absence preserves the student's status in the program and the time off will not count toward the "time to degree" time limits.

All requests for temporary absence must be approved by the program director, the college graduate dean, and the Assistant University Dean for Advanced Studies. This request should be submitted as far ahead of the desired leave time as possible to facilitate reassignment of activities and to afford as much consideration to the request as possible. To apply, a student must download the Leave of Absence Form from <http://www.grad.uc.edu/> and submit the completed form with appropriate documentation to the program director. The Assistant University Dean will notify the student, in writing, of the approval or denial of the request. To reactivate status as a graduate student at the end of the leave, the student must submit a letter to the program director informing him/her of the date they will be returning to active status.

Under special circumstances, graduate students may apply for leave of absence from full-time study for a specific period up to one year. A leave may be renewed for up to one additional year if the student applies for a leave extension at least four months prior to the end of his or her initial leave. Renewal of a leave is subject to the approval of the program, college, and the Assistant University Dean for Advanced Studies. In no case may any student be granted more than a total leave of two years.

MATERNITY/PATERNITY LEAVE

Under normal circumstances it is anticipated that students who request leave on the basis of maternity/paternity considerations will be granted up to 8 weeks continuous absence. During such leave necessary registrations will be maintained, and stipend will be paid for the 8-week duration of the leave. However, it is anticipated that students afforded such leave will take no additional vacation leave for the balance of the academic year. Under exceptional circumstances the 8-week period can be extended, but the Graduate Program Director must be informed and medical certificates of justification provided in such instances. In no case will stipend be paid for more than an 8-week period of absence. Requests for maternity/paternity leave must be made in writing to the Graduate Program Director.

EXTENDED LEAVE DUE TO ILLNESS

If a student is suffering from a debilitating illness that severely compromises his/her ability to perform their duties, an extended leave of absence may be granted only by provision of official medical certificates and/or physician's letters explaining the medical necessity of such leave. During such an extended leave necessary registrations will be maintained, but stipend will be suspended for the duration of the leave. Requests for such an extended leave of absence must be made in writing to the Graduate Program Director.

RESIDENCE STATUS FOR TUITION PURPOSES

The Program **requires** all U.S. citizens and permanent residents not currently residents of the State of Ohio to apply for Ohio residency for tuition purposes after one year. To become an Ohio resident, students must reside in Ohio for one year, be eligible to vote in Ohio, and establish other facts associated with residency common to most states (i.e., obtain Ohio driver's license, file Ohio income tax if applicable, etc.). Besides paying a substantially higher basic tuition charge, there are definite limits to the amount of financial aid that a non-Ohio resident can receive. An individual's immigration status will affect his or her ability to obtain resident status for tuition purposes.

See the Application for establishing Ohio residency form and more detailed information at the links below:

<https://www.uc.edu/registrar/residency.html>

Applications are accepted each term and should be filed once you have been here approximately 12 months. Once a decision is made on your application, the Registrar's Office will send you a letter. Please email the Graduate Program Manager a copy of this letter when you send it to the registrar. Applications **must be filed at least 3 weeks prior to the first day of the semester.**

GRADUATE METROPOLITAN/RECIPROCITY TUITION RATE

The University has a Graduate Metropolitan/Reciprocity Tuition rates for students living in specified counties in Northern Kentucky and Indiana. Students must verify their residency with the university. Information is available online.

https://www.uc.edu/registrar/residency/kentucky_reciprocity.html

https://www.uc.edu/registrar/residency/indiana_reciprocity.html

OHIO PUBLIC EMPLOYEES RETIREMENT SYSTEM (OPERS) AND PAYROLL

Graduate students are, technically, employees of the University of Cincinnati. Generally, all UC employees contribute, through payroll deduction, to the Ohio Public Employees Retirement System (OPERS) and to Medicare. Students who are enrolled for at least 6 credit hours in a semester, are exempt from these payroll deductions. Under some circumstances, such as during summer sessions or if you have already accumulated the maximum allowable credit hours, you may be registered for less than 6 credit hours. Therefore, OPERS and Medicare contributions will be deducted from your pay in accordance with State Law i.e. every summer semester other than your first summer semester in which you are registered for 6 credit hours.

MOLECULAR GENETICS STUDENT GOVERNANCE

The Molecular Genetics graduate students are an integral component of the Molecular Department, Program, and College. As such the students are expected to participate and contribute to the overall goals of the Program and College. The student governance structure is up to the discretion of the students, but there are typically three elected members of the group. President, Vice-President and Graduate Student Governance Association (GSGA) representative. The President is invited to monthly Molecular Genetics Faculty meetings when issues related to the Graduate Program are discussed, the Vice-President organizes and gives input into social activities including the Fall Picnic and Holiday Party and the GSGA representative attends monthly GSGA meetings with representatives of other Graduate Programs at the University of Cincinnati.

CAMPUS RECREATION MEMBERSHIP AND UC CINEMA

The University of Cincinnati runs an extensive Campus Recreation Program and has facilities throughout campus <http://www.uc.edu/campusrec/activities.html>. A very nice facility is located on the R level of the CARE building where many Programmatic Labs are located. The facility includes treadmills, exercise bicycles, etc. During the Fall and Spring semesters, all full-time students (>10 credit hours) are given free membership. During the Summer semester, students must pay a nominal fee of \$20.00.

APPENDIX A: QUALIFYING EXAM PROPOSAL FORMAT

The font minimum is 11 pt. The margins should be at least ½ inch.

Project Summary/ Abstract	The first major component of a grant application is the Project Summary . It is meant to serve as a succinct and accurate description of the proposed work when separated from the application. State the application's broad, long-term objectives and specific aims, making reference to the health relatedness of the project (i.e., relevance to the mission of the agency). Describe concisely the research design and methods for achieving the stated goals. This section should be informative to other persons working in the same or related fields and insofar as possible understandable to a scientifically or technically literate reader. Avoid describing past accomplishments and the use of the first person. The project summary should be no longer than 30 lines in length.
Project Narrative	The second major component of a grant application is the Project Narrative . The Project Narrative is the section of the grant application where the applicant should talk about the relevance of the proposed research project to public health. In this section, be succinct and use plain language that can be understood by a general, lay audience. It should be a maximum of 2-3 sentences in length.
2. Specific Aims	State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology. The Specific Aims should not exceed one page in length.
3. Research Strategy	Organize the Research Strategy in the specified order and using the instructions provided below. Start each section with the appropriate section heading – Significance, Innovation, Approach. Cite published

	<p>experimental details in the Research Strategy section and provide the full reference in the Bibliography and References Cited section.</p> <p>There is a 6 page limit (excluding references) for the Research Strategy on the non-thesis based proposal (Part 1) and a 12 page limit (excluding references) on the thesis-based proposal (Part 2).</p> <p>(a) <i>Significance</i></p> <ul style="list-style-type: none"> • Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses. • Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields. • Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved. <p>(b) <i>Innovation</i></p> <ul style="list-style-type: none"> • Explain how the application challenges and seeks to shift current research or clinical practice paradigms. • Describe any novel theoretical concepts, approaches or methodologies, instrumentation or interventions to be developed or used, and any advantage over existing methodologies, instrumentation, or interventions. • Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation, or interventions. <p>(c) <i>Approach</i></p> <ul style="list-style-type: none"> • Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Unless addressed separately the Resource Sharing Plan, attachment include how the data will be collected, analyzed, and interpreted as
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	<p>well as any resource sharing plans as appropriate.</p> <ul style="list-style-type: none"> • Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims. • If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work. • Point out any procedures, situations, or materials that may be hazardous to personnel and precautions to be exercised. A full discussion on the use of select agents should appear in the Select Agent Research attachment, below. • If research on Human Embryonic Stem Cells (hESCs) is proposed but an approved cell line from the NIH hESC Registry cannot be identified, provide a strong justification for why an appropriate cell line cannot be chosen from the Registry at this time. <p>If an applicant has multiple Specific Aims, then the applicant may address Significance, Innovation and Approach for each Specific Aim individually, or may address Significance, Innovation and Approach for all of the Specific Aims collectively.</p> <p>As applicable, also include the following information as part of the Research Strategy, keeping within the three sections listed above: Significance, Innovation, and Approach.</p>
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Bibliography & References Cited

Provide a bibliography of any references cited in the Project Narrative. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. Include only bibliographic citations. Applicants should be especially careful to follow scholarly practices in providing citations for source materials relied upon when preparing any section of the application.

The references should be limited to relevant and current literature. While there is not a page limitation, it is important to be concise and to select only those

literature references pertinent to the proposed research. This section does not count as part of the 6 or 12 page limitation of the Research Strategy.

**Specific Instructions have been modeled very closely after NIH Grant Guidelines.*

Qualifying Examination Evaluation

Student _____ Date _____

1) General knowledge of the field and the ability to attain expertise independently.

Excellent Good Fair Needs more work

2) Critically evaluates experimental data.

Excellent Good Fair Needs more work

3) Communicates effectively during oral presentation.

Excellent Good Fair Needs more work

4) Ability to answer questions effectively.

Excellent Good Fair Needs more work

The Written proposal

5) Organization and Clarity

Excellent Good Fair Needs more work

6) Significance and Originality

Excellent Good Fair Needs more work

7) Scientific Rigor used to address Specific Aims

Excellent Good Fair Needs more work

Comments, especially if one of the above categories is less than satisfactory:

APPENDIX B: GRADUATION PROCEDURES

GRADUATION PROCEDURES

For information on graduation procedures, deadlines and necessary forms, students must log onto the Office of Research and Advanced Studies on-line website at <http://www.grad.uc.edu/>, click on Graduation and follow the instructions. As a general rule, application for graduation should be made prior to the semester in which the degree is to be conferred. Deadline dates are established by the Registrar's Office and the Office of Research and Advanced Studies and are announced at the beginning of each Academic year. Students are responsible for ensuring that all graduation forms are submitted and that all due dates are met. **All forms are available at www.grad.uc.edu, click on Graduation Guidelines.**

The following items are to be submitted to the graduate school online:

Online Graduation Application – submit electronically at <http://www.grad.uc.edu/>. An e-mail notification is sent to the Program when you submit this form. You must have a dissertation defense date approved by the committee before you can apply for graduation. Review information needed to graduate by logging in to view your "graduation checklist" at <http://grad.uc.edu/student-life/graduation.html>.

Once you've decided on the defense title, be sure to go back to the graduation application site and post the defense announcement, with date, time, and location. The defense information will be posted at the link: <http://gradapps.uc.edu/GradAnnouncement/>. The defense seminar should be publicized at least two weeks ahead of the defense date and must be announced by week 8 of the term. Be sure to send the title for your defense to the Graduate Program Manager two weeks ahead of your defense, as well as posting the defense announcement at the link above.

- **Online ETD Survey.** The questionnaire is anonymous and the results will be shared with the doctoral program.
- **Electronic Thesis/Dissertation (ETD) to OhioLINK** (see Graduate School website: <http://grad.uc.edu/student-life/etd>). The advisor must electronically approve that the dissertation submitted is the final corrected copy. After approval, the dissertation will be automatically submitted to the graduate school.
- **Online filing** of ETD Publication Embargo Form, originally-signed approval pages.
- **Survey of Earned Doctorate** (optional) (Doctoral Degrees only). Each doctoral candidate must complete this form. The basic purpose of this survey is to improve graduate education by gathering objective data about doctoral graduates.

The following items are to be submitted to the Molecular Genetics Graduate Program office:

- **Forwarding Address and Position Information.** Please send an e-mail to Graduate Program Coordinator containing your new address and the position you have accepted following graduation.
- **Notification for Defense of Dissertation.** Notify the Graduate Program Coordinator by email as soon as the committee has approved of your defense date. Notice should include title of dissertation and the date, time and location of defense. The Program will use this information to prepare your defense announcement and to reserve a room for the defense.
- **Three copies of dissertation in final form.**
 - Please submit three paper copies of your dissertation to the Graduate Program Coordinator. This should be done as soon as possible after the advisor has electronically approved the dissertation.

To be completed by the Graduate Program Director.

The student must be certified by the Graduate Program Director for graduation. Certification ensures that all requirements have been met by the student. Certification requires that the dissertation has been submitted and approved before the deadline. Details on certification can be found on the University-wide Graduate School Handbook.

www.grad.uc.edu/content/dam/grad/docs/Publications/handbook.pdf

Additional recommendations, once you have successfully defended

- Do not wait until the last day before your first electronic submission: 1) It might fail to upload for a number of reasons, the most frequent being issues with embedded fonts. 2) The dissertation must be approved electronically by the chair of the dissertation committee after you upload the dissertation for the first time. This might take a day or longer if there are delays by your advisor. He/she must certify that the electronic version that you've submitted contains all of the corrections/edits that were required for the final submitted draft. You might need to remind them of this if you don't not receive an email verification from the graduate school in a timely manner (see below).

- Once your advisor has approved the dissertation electronically it will be submitted to the graduate school automatically. You should receive an email from the graduate office. The electronic approval by your advisor must meet the Electronic Dissertation Deadline – no exceptions.
- After the dissertation is submitted, you will get instructions at a later date from UMI (the national organization for dissertation/thesis publications) as to how you want the dissertation published. The following choices are what our graduates choose:
 1. Select the traditional publication option for publishing your dissertation (no fees). Our students do not take copyright or open access options which involve additional fees.
 2. Students usually apply for the embargo for a year (or more). This prevents public access to your dissertation for a year or more so you have time to include any unpublished data into a journal publication.
 3. Do NOT pay UMI to have your dissertation bound. Instead, provide three copies of your dissertation to the Graduate Program Coordinator who will have them bound them for you (the Molecular Genetics Program will pay for the costs). One copy will go to you, one to your advisor, and one to the Molecular Genetics Program. If you want any additional copies of the bound dissertation you must pay for the costs yourself and see the Graduate Program Coordinator for instructions.

Other notes:

- Let us know if you intend to attend the doctoral hooding ceremony.
- Take a look at the following website for information on Degree Certification for future employers/positions:
http://www.uc.edu/registrar/graduation/time_to_diploma.html
- The Graduate Program Director can also write a letter certifying that you have completed all of the requirements for your degree that will be conferred at the end of the semester. This letter will suffice for most job positions that begin before the semester ends.
- Cap and Gown may be purchased or rented at the University Bookstore.

PUBLICATION OF DISSERTATION

All dissertations developed and produced by students at the University of Cincinnati must be made accessible to the public through publication by OhioLINK* and ProQuest. Dissertations must be submitted in electronic format.

At the University of Cincinnati, completed and approved electronic dissertations are submitted to the University of Cincinnati library by the Graduate School and to ProQuest. The reproduction of a dissertation through ProQuest and the library is regarded as publication. The abstract will be published on OhioLINK and other electronic databases.

A student may apply to the Senior Assistant University Dean of the Graduate School, in the Graduate School, to embargo (delay) electronic publication of the dissertation for up to three years. Once the initial request has been granted, additional one-year extensions may be requested. It is the student's responsibility to request all extensions. If an embargo period expires and no request for an extension has been granted, OhioLINK will automatically release the document for electronic dissemination. The student must complete and return to the Graduate School the Request for Embargo Form, available on the web at <http://grad.uc.edu/student-life/etd> along with his or her dissertation prior to the submission deadline. Information about electronic dissertations, including a description of the advantages of preparing a dissertation electronically, can be accessed at www.etd.uc.edu. Electronic dissertation information is also included on the Graduate School website at <http://grad.uc.edu/student-life/etd>. Students in Molecular Genetics select the "Traditional" publishing route with no fees involved and apply for an embargo if there is still unpublished data in the thesis that might be used in a future publication.

** OhioLINK (Ohio Library and Information Network) is a consortium of Ohio's college and University libraries and the State Library of Ohio. OhioLINK serves faculty, students, staff, and other researchers at member institutions via campus-based library systems and networks and the Internet.*

APPENDIX C: APPLICATION AND ADMISSION

The Program of Molecular Genetics, Biochemistry and Microbiology offers a Ph.D. program and also participates in the combined M.D./Ph.D. program. The Program also offers a both a full-time and part-time Master's Degree (a program which can be tailored to fit the individual needs of each student).

HOW TO APPLY

All applicants to graduate programs at the University of Cincinnati are required to submit an online application to the Graduate School - this can be accessed at www.grad.uc.edu. There is a \$65 application fee, which can be paid by credit card online. If you plan to use this latter method of payment please pay particular attention to the instructions given. Note that you must indicate the graduate program of interest (i.e., Molecular Genetics, Biochemistry and Microbiology - Ph.D. or M.S.) in step 1 of the online application. The Graduate School will forward a copy of the online application to the Program.

Official transcripts should be mailed directly to:

Regular U.S. postal mail:

Graduate School
University of Cincinnati
110 Van Wormer Hall
P.O. Box 210627
Cincinnati, Ohio 45221-0627

Delivery via parcel delivery service (FedEx, DHL, UPS, etc.):

Graduate School
University of Cincinnati
2614 McMicken Circle
110 Van Wormer Hall
Cincinnati, OH 45221-0627

Additionally, many schools now send transcripts electronically. The Graduate School accepts electronic transcripts sent directly by the school as official transcripts. These documents can be sent to grad.info@uc.edu.

After preliminary screening of applications, selected applicants may be invited to visit the Program. The visit serves as an opportunity for the applicant to meet the faculty and current graduate students, and to view the Program's research facilities. In addition, it gives the members of the Program the opportunity to meet the prospective student. Applications and supporting documents for the Ph.D. program should be submitted by December 15th for maximal consideration, although applications received up until January 15th may be considered based

on availability of space in January. Applications and supporting documents for the Master's Program should be submitted by March 1st.

ADMISSION REQUIREMENTS

Doctoral Programs

Prospective students are expected to have a strong undergraduate background in biology, chemistry, physics and mathematics with an overall GPA of at least 3.2 on a 4.0 scale. Our Program requires that all applicants take the general aptitude test of the Graduate Record Exam (GRE). In some instances MCAT scores may be acceptable. Minimal GRE percentile scores of applicants we accept are in the range of 70-80%. Minimal MCAT scores of competitive applicants are in the range of 65th-75th percentile. The GRE is administered by the Educational Testing Service, Princeton, New Jersey 08540. The MCAT is administered by the American Association of Medical Colleges, Washington, DC 20001. Tests should be taken so that results are available by January 15 of the admission year.

Masters Programs

Prospective students are expected to have a strong undergraduate background in biology, chemistry, physics and mathematics with an overall GPA of at least 3.0 on a 4.0 scale. Our Program requires that all applicants take the general aptitude test of the Graduate Record Exam (GRE). Minimal GRE percentile scores of applicants we accept are in the range of 50-60%. The GRE is administered by the Educational Testing Service, Princeton, New Jersey 08540, and should be taken so that results are available by January 15 of the admission year.

INTERNATIONAL STUDENT ADMISSION

No international student will be granted admission on any basis other than full graduate standing. Selected applicants who reside overseas may be interviewed by live internet for further consideration. Before their admission to the University is completed, all international students must fulfill U.S. Immigration requirements and register with the International Student Services Office.

Students whose native language is not English must demonstrate proficiency in English by submitting scores on the Test of English as a Foreign Language (TOEFL) before they can be considered for admission. This requirement may be waived with permission from the University Dean for international students who have a degree from an accredited American college or university and who have studied oral and written English while a student in the American college or university. The minimum acceptable score on the TOEFL is 100 on the Internet Based Test. Students may also take the International English Language Testing System (IELTS) test. The minimum acceptable band score on the IELTS is a 7.0.

Upon arrival at the University of Cincinnati, all international students are required to carry University of Cincinnati student health insurance.

ADMISSION DECISIONS

Decisions on admission are the responsibility of the Director of Graduate Admissions and the Graduate Program Committee appointed by the Chair of the Molecular Genetics Department, consisting of several faculty members including the Director of Graduate Studies. The committee is assisted by a student chosen by the Molgen Graduate Student Association (GSA). Recommendations for admission are reviewed and approved by the Director of the Graduate Studies. New students may be admitted at any time; typically acceptances are announced by March 15 and students are requested to respond by April 15. Students must arrive by mid-August at a designated date for orientation and to begin their rotations. However, students are strongly encouraged to begin in early July to initiate laboratory rotations.

FINANCIAL AID DECISIONS

All doctoral program students in good academic standing, not already receiving a scholarship by a national or foreign institute, foundation or organization, will normally receive **two** awards, a graduate assistantship (UGA) to cover stipend, and a graduate scholarship (UGS) to cover tuition plus student fees. These are meritorious awards and are renewed for all students in good academic standing for a total of five years. All students are expected to devote full-time (12 months per year) to their academic and research training, and for this reason outside employment is not allowed.

Students receiving University Graduate Scholarships (UGS) or University Graduate Assistantships (UGA) must carry a full-time course load (12 credits or more) each semester exclusive of audit credits. Under ordinary circumstances, assistantships and tuition scholarships will not be awarded to students who have accumulated 174 or more graduate credit hours (140 graduate credit hours for previous MS recipients). Students must register for a minimum of 12 graduate credit hours each semester for the academic year. First year students will register for summer classes during their first summer. Some students receiving training grants may be required to register for a summer class.

Students who are supported with stipends who elect to receive health insurance coverage are required to apply for the GSHI (Award A) from the graduate school which will cover part of the Student Health Insurance costs. The Program typically covers the remaining part of the Insurance costs. Students who chose to opt out of Student Health Insurance (remain on parents plan, etc) are required to complete a waiver. Please contact the Molgen Graduate Program Coordinator for more information.

STIPEND AND TUITION SUPPORT

Graduate education represents shared responsibilities among the student, advisor, dissertation committees, Molecular Genetics Graduate Program and Molecular Genetics Department. It is the advisor's and Dissertation Committee's responsibility to provide guidance and training during this period. Students must make a commitment toward fulfilling all academic and research requirements for the Ph.D. and working consistently and productively toward this goal. Each program assumes the responsibility to provide tuition, fees, health insurance (if needed), and stipend support for up to five years for full-time Ph.D. students who remain in "good standing". If a student is not likely to complete his/her degree requirements, including writing and defending the thesis, by the end of the fifth year, the Dissertation Committee will meet and evaluate the student's progress (FOR DETAILS SEE SECTION V ABOVE). Stipend support for students will be terminated after the sixth year of graduate studies unless there are extenuating circumstances, as determined by the advisor, dissertation committee, Graduate Program Director and Chair.

Stipend support for the 2019-2020 academic year will be \$28,000 for first and second year students and \$30,000 for third year students and beyond who have passed their qualifying exam. Students who obtain external fellowships (e.g. NIH-F31, AHA Pre-Doc, etc) to support their stipends will be awarded an additional \$2,000 per year for every year that they have the external fellowship.

STIPEND TAXABILITY

The Internal Revenue Code maintains that the only scholarship or fellowship amounts EXCLUDABLE from gross income are those used for tuition and fees, books, supplies, and equipment required for courses of instruction.

Amounts used for room and board and other living expenses are INCLUDABLE in income. In addition, any amounts received that represent payment for teaching, research or other services required as a condition for receiving the scholarship or fellowship are also includable in income. These conditions also apply for state and city taxes.

Students should maintain careful records of their legitimate educational expenses in order to document any deductions that may be claimed when filing taxes. Students with questions regarding a potential tax liability should consult a personal tax specialist or accountant.

ADMISSION WITH ADVANCED STATUS

Students accepted for the Ph.D. program with previous graduate level training will be notified in writing at the time of admission if they qualify for "advanced status". Students can petition the Graduate Studies Committee for the transfer of credits for work completed at other institutions. This may be for course work or for special projects, research or equivalent. For these students the Graduate Studies Committee will determine course requirements. Advanced status students may also elect to complete the candidacy examination requirement earlier than usual.

Students who complete the MS degree in Molecular Genetics and have been offered admission into the doctoral program can elect to complete their candidacy either in their first or second year of their doctoral studies. Students who are accepted into the doctoral program after having studied in the MS program should have a dissertation advisor arranged at the time of matriculation, thus eliminating the requirement for laboratory rotations.

APPENDIX D: REGISTRATION PROCEDURES AND REQUIREMENTS

REGISTRATION AND REGISTRATION CHANGES (Add/Drop)

U.C. uses an online system for course registration (www.onestop.uc.edu). All registrations and changes to registrations require approval of the student's advisor and the Director of Graduate Studies. Once a student has completed registration, the official record can be changed using a registration change (add/drop) form or on the Web through OneStop. After the seventh calendar day of the semester, additions to a class schedule require a faculty signature and a signature from the college offering the class and must be processed in person.

AUDIT REGULATIONS

The audit option is intended for cases in which course work is desired but a grade for credit purposes is deemed unnecessary. Admissions and conditions for participation in audit courses are at the discretion of the course director. Audit hours do not count toward the 174 graduate credit hour (semester system) limit (eligibility for financial assistance), nor are they included in the determination of full-time status. Audit hours may be charged to a UGS (University Graduate Scholarship) only if the first 12 credit hours in a semester are taken for regular graduate credit and the total credit hours, including the audit hours, are less than 18 credits. No more than one audit course per semester is permitted.

PASS/FAIL

Pass/Fail grades are usually available only on specific electives, Research, and Rotations. Exceptions require approval of the advisor, the instructor and the Graduate Studies Committee.

COMPLETE WITHDRAWAL PROCEDURES

Complete (all classes) withdrawal from the University may be initiated by the student in writing on a "Complete Withdrawal" form available in the college or Program office. The effective date of a complete withdrawal to be used in determining refunds is the date that the withdrawal is submitted to the Office of the Registrar for processing. A refund will not be issued to a student who has been awarded a University Graduate Scholarship.

HEALTH INSURANCE

Students registered for six or more credit hours during a semester will automatically be charged for UC Student Health Insurance. Students having other coverage must either complete and submit an Insurance Waiver Form or visit the web at onestop.uc.edu to waive coverage *before the waiver deadline, published at http://www.uc.edu/uhs/student_health_insurance.html, and often before the end of week 2 of the term.* International students are required to be covered under the University Student Insurance Plan and are not eligible to waive coverage.

- Students must inform the Graduate Program Manager in the spring of the preceding academic year of their plans regarding health insurance. Students who need the University Health insurance and who have a stipend must apply for the Graduate Student Health Insurance Award before the deadline each term, which occurs prior to the start of the term. See requirements for your health insurance plan at: http://www.uc.edu/uhs/student_health_insurance.html
- Students currently on their parent's insurance plan who intend to come off that plan during the upcoming health insurance year due to age requirements, etc must inform the Program Coordinator and UC Student Health Insurance during the Fall Semester to determine eligibility and file the necessary paperwork to make that transition happen. Each new insurance year begins on August 11th and continues through August 10th of the following year.

Students registered for 5 or fewer credit hours during a semester, who need the University Health Insurance coverage must:

- Complete the Graduate Student Health Insurance Award Application for the semester in question
- Complete the insurance enrollment form, which may be found at the link:
- http://www.uc.edu/uhs/student_health_insurance/forms.html. Students must register for classes prior to submitting this form to student health insurance, otherwise the form will be discarded. See more at: http://www.uc.edu/uhs/student_health_insurance.html

APPENDIX E: GRADUATE CREDITS AND GRADING PRACTICES

Graduate Assistants and University Graduate Scholarship Recipients

Students receiving a Graduate Assistantship (GA) or University Graduate Scholarship (UGS) must carry a full-time course load (12 graduate credits or more), exclusive of audit credits. Fellowships, assistantships and tuition scholarships from University General Funds may not be awarded to students who have accumulated 174 semester hours (140 if already a holder of a Master's degree) or more graduate credit hours. The number of years of eligibility for a graduate assistantship and a tuition scholarship are indicated in this handbook (see Appendix C, Stipend and Tuition Support). The workload requirements of students who hold assistantships are determined by the Academic Program but they are generally expected to provide 20 hours per week when taking classes or 40 hours per week after coursework is completed. In addition, they must register for a minimum of 12 graduate credit hours each semester. If students are employed separately from their assistantships a number of legitimate academic concerns can be raised (including length of time to earn their degrees). The following policy recommendations are to be followed:

1. One course per semester (or the equivalent FTE% for non-instructional assignments) is the maximum part-time workload allowable for those who have a graduate assistantship.
2. Programs should closely monitor the academic progress of students holding more than one University appointment/employment. This should include semester grade reports and a progress report for each student's file.
3. Continued academic progress is expected; should progress slow, the additional appointment should be terminated.
4. In addition, students may become ineligible for the Graduate Student Health Insurance Award should their Graduate Assistantship stipend monies drop below \$2,400 per term. Students will be responsible for paying the amount owed should this occur.

Grading Practices

When not superseded by Program specific policies and practices, University grading practices will be followed. Reports are rendered in the form of grades which should be interpreted as follows:

	<u>Quality Points</u>
A	4.0000
A-	3.6667
B+	3.3333
B	3.0000
B-	2.6667
C+	2.3333
C	2.0000
P	0.0000
F	0.0000

Graduation with F on the transcript will be permitted only if:

- a. The student meets published Program Standards for the degree program, and
- b. a grade of F in a required course is superseded by a grade of B- or better in the same course retaken by the student.

U Unsatisfactory work for non-credit graduate courses

W Official Withdrawal: Indicates that the student or Professor processed a drop or official withdrawal from a course for which he/she was registered. Students who drop courses through the first two weeks of the semester will have the courses deleted from their schedules and they will not appear on the permanent academic record. Thereafter, students dropping courses must obtain the professors' signatures and grades (W or F) on add/drop forms. No drops will be accepted after the tenth week of classes for the semester.

T The audit option is intended for the student who desires, or is advised, to do work in a course in which a grade is deemed unnecessary by the student in consultation with the advisor or Graduate Program Director. Admission and conditions for participation in audit courses are at the discretion of the instructor. Audited courses do not count toward minimum coursework requirements for any degree in Molecular Genetics Graduate Programs.

- a. Registrations for audit may be utilized in deficiency/remedial registrations in the major area and may be utilized in elective registrations outside the major area.
- b. It is recommended that there be a maximum audit registration of one course per semester.
- c. The T grade should denote (at the minimum) that a student has regularly attended the course.

NG No grade reported

The N grade will no longer be used for unreported grades. Unreported grades will remain blank on record but will be reported on student output (grade reports, transcripts) as "No Grade Reported"

SP/UP In Progress

- a. The SP/UP grade should be limited to the following situations:
 - Thesis/dissertation, research, projects and multi-semester seminars in which the basis for evaluation was incomplete at the time grades were due for that semester.
- b. Programs or colleges must prepare published listings of those courses for which SP/UP grades are applicable.
- c. The SP/UP grade should not be used as a final grade in normal lecture courses.
- d. SP/UP grades must be removed prior to graduation.

GRADING POLICY OF THE PROGRAM OF MOLECULAR GENETICS, BIOCHEMISTRY AND MICROBIOLOGY

Grading criteria were developed for each of the three categories of courses in which Program faculty members are the course director(s).

I. Required graduate courses with a letter grade.

1. Molecular and Cellular Biology (College of Medicine core)
 - 2a. Biochemistry and Cellular Metabolism
 - 2b. Immunology
 - 2c. Microbiology and Immunology
 - 2d. Chemistry, Structure, and Therapeutic Applications of Biomolecules
 - 2e. Mechanisms of Signal Transduction

*students must take two of the five courses listed in 2a-2e.
3. Statistics and Experimental Design for Biomed Sciences
4. Professional Development and Grant Writing

II. Required graduate courses with a P/F Grade

1. Graduate Seminar in Molecular Genetics (Journal Club, 3 semesters)
2. Ethics in Research

Grades are assigned by quality of presentation and participation in journal club and appropriate participation in the Ethics Course

III. Rotation and Research courses with a P/F Grade

1. Rotation -- Policies are presented clearly in the Program's Graduate Student Handbook (p.8).
2. Research -- The faculty adviser will at the outset of the grading period provide the student with the criteria for attaining a P grade.

IV. Elective Graduate Courses (Lecture or Seminar based)

Due to the heterogeneity in format of such courses (which may be organized either from within or outside the Program), the grading policy is left to the discretion of the course director(s). Typically, grading policy for Program elective courses will conform to the criteria described in section I above.

APPENDIX F: ACADEMIC HONESTY AND DISCIPLINE

Academic Honesty

Scientific inquiry is a community endeavor founded on honesty, trust and cooperation. We expect all students participating in the Graduate Programs in Molecular and Human Genetics to uphold the highest standards of behavior. All students must read and abide by the standards outlined in the University of Cincinnati's Student Code of Conduct. In addition, the Programs provide instruction in appropriate scientific behavior as part of the Graduate Student Journal Club and the course in Academic Conduct.

Allegations of academic misconduct are investigated via a standard process described here <https://www.uc.edu/campus-life/conduct/student-code-of-conduct.html>. Acts of academic misconduct are considered extremely serious and, generally, any student found to have engaged in an act of academic misconduct will be dismissed from the Program.

The Student Code of Conduct describes Academic Misconduct as including, but not limited to:

CHEATING: Any dishonesty or deception in fulfilling an academic requirement, such as:

1. Use and/or possession of unauthorized material or technology during an examination (any written or oral work submitted for evaluation and/or grade), such as smartphones, notes, tests, calculators, or computer programs.
2. Obtaining assistance with or answers to examination questions from another person with or without that person's knowledge.
3. Furnishing assistance with or answers to examination questions to another person.
4. Possessing, using, distributing, or selling unauthorized copies of an examination, or computer program.
5. Representing as one's own an examination taken by another person.
6. Taking an examination in place of another person.
7. Obtaining unauthorized access to the computer files of another person or agency, and/or altering or destroying those files.

FABRICATION: The falsification of any information or citation in an academic exercise.

PLAGIARISM:

1. Submitting another's published or unpublished work, in whole, in part, or in paraphrase, as one's own without fully and properly crediting the author with footnotes, citations or bibliographical reference.
2. Submitting as one's own, original work, material obtained from another

individual or agency without reference to the person or agency as the source of the material.

3. Submitting as one's own, original work, material that has been produced through unacknowledged collaboration with others without release in writing from collaborators.

AIDING or ABETTING ACADEMIC MISCONDUCT: Knowingly helping, procuring, or encouraging another person to engage in academic misconduct.

In addition, the Student Code of Conduct covers acts of non-academic misconduct that include a variety of inappropriate conduct, including theft, unauthorized possession of weapons, threatening others, etc. You should be aware that harassment, particularly sexual or racial harassment, is unacceptable. Acts of non-academic misconduct are subject to a wide range of penalties, but serious violations may lead to suspension or dismissal from the Program.

DISMISSAL

Students may be dismissed for misconduct, violation of University rules or failing to maintain Good Academic Standing. If at the end of the first year a student fails to find a laboratory and advisor for his/her thesis research, the student will be subject to dismissal.

A student, who is placed on Academic Probation for more than one issue or has failed to successfully achieve the required action stated in the initial Letter of Probation, will be subject to immediate dismissal from the program. The student may petition the Graduate Committee for waiver of this rule (see below).

A student who has been dismissed due to academic standing may appeal to the Graduate Committee for waiver of this rule if sufficient reason for consideration exists. If the appeal is successful, a decision regarding financial aid will be made independently (i.e. waiver of dismissal upon appeal does not assure continued financial support). A student granted a waiver will be reinstated into the program on a probationary basis for up to one year. A Letter of Probation will be sent to the student and to the student's advisor. The Letter of Probation will describe the action that the student must take to return to Good Academic Standing. At the end of the probationary period a decision to recommend removal from probation or dismissal will be made by the Graduate Committee. Documentation outlining "Graduate Student Grievance Procedures" and "Graduate Students Misconduct Procedures" is available online at http://www.uc.edu/conduct/Academic_Integrity.html

APPENDIX G: STUDENT RIGHTS, GRIEVENCE, ETC

SEXUAL HARASSMENT

Sexual harassment is forbidden by law and also is completely contrary to the rules of our program and to the trust and cooperation that are central to scientific endeavors. Anyone who feels that they may have been subjected to sexual harassment is strongly encouraged to speak to the Graduate Program Director, the Graduate Program Manager, or the Chairperson of the Department of Molecular Genetics. If the student is uncomfortable with speaking to the above suggested individuals, the student should take action through the University Grievance procedure. Complaints will be investigated promptly and discreetly and forceful actions will be taken to solve the problem. **The Program will do everything possible to make certain that the act of complaining in no way compromises a student's career.**

NON-DISCRIMINATION POLICY

The Graduate Programs in Molecular Genetics strongly affirms its policy that discrimination on the basis of race, color, religion, national origin, sex, sexual orientation, handicap or age will not be practiced in any of its activities. Any complaints involving the abridgement of this policy should be addressed to the Director of the Program or to the University Affirmative Action Coordinator at 556-5503.

RIGHT TO REVIEW RECORDS

Students, once enrolled, have the right to review their educational records, except for those excluded by law, such as records maintained by a physician or psychiatrist, or parents' financial statement. Educational records are maintained in such offices as Student Records, the different College Deans' Offices, program offices, Student Financial Aid, Career Development and Placement, and Educational Advising.

In order to gain a review of such records, along with any appropriate explanation or interpretation, the student should first address the proper university, collegiate, or Program office. Should the student encounter any difficulty in obtaining a review of the student record they may appeal to the Family Educational Rights and Privacy Act Committee. It is the policy of the University of Cincinnati that the kinds of student records referred to in this statement will be reviewable by any qualified student at any reasonable time. Copies of any portion of the record will be provided at cost, except transcripts of students' permanent academic records for which the University's transcript policy will apply.

It is the policy of this institution that all student records, other than "Director Information," are to be treated with confidentiality so that the only access afforded University faculty or staff is on a "need-to-know" basis. The University considers the

following information as "Director Information": The student's name, address, telephone number, college, class, major field of study, dates of attendance, registration status, and degrees and awards received. The office responsible for the maintenance of any particular student record will be responsible for seeing to it that such confidentiality is maintained.

GRIEVANCE PROCEDURES

Any graduate student who believes that he or she has valid grounds for a grievance should prepare a written statement of the grievance setting forth the specific allegations with reasonable particularity and submit it as follows:

- a. To the Director of the Program for grievances against a faculty member or an agency associated only with that program with a copy simultaneously sent to the University Dean.
- b. To the college dean for grievances against faculty members in two or more programs of that college or a college-wide agency with a copy simultaneously sent to the University Dean.
- c. To the University Graduate Dean for grievances against faculty members in two or more colleges or a university-wide agency.

Program Review: Within one academic calendar week after the Program Director receives such a statement of grievance, he or she will appoint an ad hoc review committee consisting of three disinterested members of that college's graduate faculty (excluding him or herself) and two disinterested graduate students, all drawn from that program, and will inform the grievant and all other parties to the grievance of these nominees. The grievant and/or all other parties to the grievance may challenge the disinterestedness of any nominee. When a committee acceptable to all parties to the grievance is appointed, this committee will convene within one academic calendar week after their appointment.

APPENDIX H: TEACHING ASSISTANTSHIPS

Teaching Assistantship Opportunities for Graduate Students (TA)

What are the first steps I should take if I want to be a TA?

- Think about how/whether it fits with your educational and career goals. Please look at the Preparing Future Faculty website <https://grad.uc.edu/development/pff.html>
- Talk to other TA's
- A single letter of permission signed by your thesis advisor AND Dr. Miller (Director of Graduate Studies)

What are some things TAs routinely assist with?

- Class/lab preparation
- Giving a lecture if the Professor/Instructor is absent
- One-on-one instruction during scheduled "office hours"
- Grading and proctoring exams

What is a prerequisite for being a TA?

An interview with the Course Director and a demonstration of knowledge of the course material.

What are some benefits for a TA?

- Learn teaching skills and educational methods (pedagogy)
- Gain some teaching experience - helpful if your future plans include teaching at a college or university
- Form a relationship with a professor who teaches in an area of the student's interest.

What permissions should a TA have in Blackboard?

You will need to work with the course Directors. If you are designated an Instructor, you will have the ability to add content AND grades to a Blackboard course. If you are designated as a Course Builder you can add content but NOT grades.