

Molecular and Medical Genetics Program Guidelines

Overview

These rules pertain to all students in the Department of Molecular and Medical Genetics (MMG) and are in partnership with the guidelines and requirements set forth by the Program in Molecular and Cellular Biosciences (PMCB) and the Graduate Council of the Oregon Health & Science University (OHSU) School of Medicine, particularly the "Academic Guidelines for PMCB," the "By-Laws of the Graduate Council," and the "Guidelines and Regulations for Completion of Master's and Ph.D. Degrees." Additional important information is contained in the OHSU "Graduate Studies Handbook."

Contents

<u>Checklist</u>	<u>2</u>
<u>General Timeline</u>	<u>3</u>
<u>Definitions</u>	<u>3</u>
<u>Links</u>	<u>4</u>
<u>Program Contacts</u>	<u>4</u>
<u>First Year Advisor</u>	<u>5</u>
<u>Research Rotations</u>	<u>6</u>
<u>Selection of a Faculty Mentor</u>	<u>6</u>
<u>Required Courses</u>	<u>6</u>
<u>First Year PMCB Courses</u>	<u>6</u>
<u>Required Graduate Courses in MMG</u>	<u>6</u>
<u>Electives</u>	<u>7</u>
<u>Research Credits</u>	<u>8</u>
<u>Dissertation Credits</u>	<u>8</u>
<u>Seminar</u>	<u>8</u>
<u>Journal Clubs</u>	<u>8</u>
<u>Grand Rounds</u>	<u>8</u>
<u>Course Load</u>	<u>8</u>
<u>Course Waivers</u>	<u>8</u>
<u>Grading</u>	<u>9</u>
<u>Course Descriptions</u>	<u>10</u>
<u>Academic Progress</u>	<u>12</u>

Molecular and Medical Genetics Program Guidelines

Contents

<u>Training in the Responsible Conduct of Research</u>	<u>12</u>
<u>Comprehensive Exam</u>	<u>12</u>
<u>Qualifying Exam</u>	<u>12</u>
<u>Advancement to Ph.D. Candidacy</u>	<u>16</u>
<u>Dissertation Advisory Committee</u>	<u>16</u>
<u>Formation of Oral Examination Committee</u>	<u>17</u>
<u>Oral Examination</u>	<u>18</u>
<u>Finalizing Ph.D. Requirements</u>	<u>19</u>
<u>Terminal Master's Degree</u>	<u>20</u>
<u>Ethical and Professional Behavior</u>	<u>20</u>
<u>Graduate Student Stipends</u>	<u>20</u>
<u>Travel to Scientific Conferences</u>	<u>20</u>
<u>Time Limit for Completing Degree Requirements</u>	<u>21</u>
<u>Extracurricular Employment</u>	<u>21</u>
<u>Sick Leave, Vacation, and Leave of Absence</u>	<u>21</u>
<u>Vacations and Holidays</u>	<u>21</u>
<u>Leave of Absence</u>	<u>21</u>
<u>Dismissal</u>	<u>22</u>
<u>Grievances</u>	<u>22</u>
<u>Exceptions</u>	<u>22</u>

Checklist

- Successfully complete PMCB Year 1 Coursework and three Lab Rotations
- Pass Comprehensive Exam
- Select a lab, mentor, and academic degree program to complete PhD requirements
- Register and attend MMG elective course requirements
- Register and attend MMG Journal Club, Seminar and Grand Rounds each term
- Register for research credits each term (pre-defending students)

Molecular and Medical Genetics Program Guidelines

- Pass Qualifying Exam and request Advancement to PhD Candidacy
- Request Appointment for a Dissertation Advisory Committee
- Formally meet with Dissertation Advisory Committee at least once every 6 months
- Register for dissertation credits each term (defending students)
- Successfully complete 135 hours of approved graduate credits
- Request Oral Examination
- Defend dissertation and pass Oral Examination
- Submit final paperwork and bound dissertation
- Graduate!

General Timeline

The Ph.D. program is organized as follows:

Year 1: Begin to complete course requirements. Complete three laboratory rotations.

Prepare for and complete the 1st-year PMCB comprehensive exam. (Students scoring below 70% on the 1st year comprehensive exam will be required to take a course of action to remediate the deficiency. Remediation should be completed no later than Spring of year 2).

Choose a dissertation advisor.

Note: During the first year, the student will be mentored by a PMCB advisor, appointed by the PMCB Advisory Committee.

Year 2: Complete required and elective courses.

Prepare for and complete the 2nd-year candidacy exam.

Year 3 and up: Undertake research leading to the Ph.D. dissertation.

Attend and participate in Departmental Seminars and a Journal Club.

Definitions

Sakai is OHSU's online course management system.

Graduate Program. Any educational program leading to the Doctor of Philosophy, Master's degree, Graduate Certificate or equivalent graduate degree at OHSU.

Nano Course. A nano course refers to a short course, offered for 0.5 credit. They are intended to be special topics courses that capitalize on timely subject matter, visiting expertise, and/or highlight new developments in a field. Flexibility in scheduling and course leadership (i.e. not part of the permanent curriculum) will insure these courses are nimble. Nano courses are offered no more than twice. If a

Molecular and Medical Genetics Program Guidelines

course is deemed to be worth offering regularly, it will go through the regular course review and approval process.

Program. The word “Program” shall refer to a department, interdepartmental committee or other School of Medicine administrative unit that has received approval from the Faculty Council and has been accredited to offer an educational program leading to the Master’s or Ph.D. degree. A Program with a single administrative structure that oversees training for more than one degree (e.g., Master’s and Ph.D.) shall be considered to be one program.

Program Director. “Program Director” shall refer to the department chair, chair of the interdepartmental committee, or director of the administrative unit responsible for overseeing the Program. Responsibility for representing the program may be delegated to a member of the program faculty when deemed appropriate by the Program Director.

Links

OHSU Registrar

[Registration Information](#)

[Academic Calendar](#)

[General Registrar Forms](#)

School of Medicine Graduate Studies

[Policies and Guidelines](#)

[Bylaws](#)

[Guidelines and Regulations for Completion of](#)

[Masters and Ph.D. Degrees](#)

[Graduate Studies Student Handbook](#)

[Student Forms and Policies](#)

[Faculty Forms and Policies](#)

[Graduate Faculty Index](#)

Program in Molecular & Cellular Biosciences

[PMCB Admissions](#)

[PMCB Curriculum](#)

[By-Laws, policies & guidelines](#)

MMG Graduate Program

[MMG Handbook](#)

[MMG News and Events](#)

Other Helpful Links

[OHSU Student Portal](#)

[Joseph B. Trainer Health & Wellness Center](#)

[OHSU Graduate Student Organization](#)

[Student Life](#)

[Sakai](#)

[OHSU Fact Book](#)

[Stipend Info](#)

[Vollum Writing Program](#)

[OHSU Code of Conduct](#)

Program Contacts

[Amanda McCullough, Ph.D.](#)

Program Co-Director

[Mushui Dai, Ph.D.](#)

Program Co-Director

[Shawna Rinne](#)

Department Administrator

[Melissa Brewer](#)

Grants/Contracts Coordinator

[Brandi Reese](#)

Graduate Program Coordinator

[Tim McCormick](#)

Computer User Support Analyst 2

[Juli Keele](#)

Administrative Assistant

[Amanda Asbrock](#)

Administrative Assistant

First Year Advisor

Initial advising will be provided by members of the PMCB Advisory Committee (PAC) made up of PMCB faculty knowledgeable in all aspects of graduate training in the School of Medicine at OHSU. PAC advising and mentoring provides consultation for PMCB students for academic and non-academic concerns. At the time of matriculation, each student is assigned a PAC advisor. PAC advisors are familiar with academic requirements of all five participating graduate programs, as well as the Graduate Council By-Laws, Student Handbook and general School of Medicine regulations.

PAC (1st year) Advisors:

1. Meet with the student during Orientation.
2. Meet with the student at least once each term.
3. Review and advise regarding rotation decisions, course choice, and registration.
4. Review the student's academic record and written rotation performance summary at the end of each term.
5. Promptly meet with student placed on academic probation to formulate a plan for amelioration.
6. Report any concerns to the PMCB Steering Committee and/or the PMCB Director.

Research Rotations

Students rotate in labs following PMCB guidelines. This allows the students to experience a variety of research opportunities and to help them choose a mentor for their graduate thesis work.

Refer to PMCB Academic Guidelines for detail on research rotations, including requirements for requesting a research rotation.

Selection of a Faculty Mentor

After successful completion of three research rotations, students select a faculty member to serve as their mentor. The decision of a student to enter into a laboratory to pursue research is dependent upon a joint agreement between the faculty member and the graduate student, and is subject to approval by the PMCB Director. Conditional approval based on an agreement that there will be a co-mentor will be at the discretion of the Program Chair and the PMCB Director. The mentors must be members of both School of Medicine Graduate Faculty and PMCB faculty.

Refer to PMCB Academic Guidelines for detail on selection of a faculty mentor.

Molecular and Medical Genetics Program Guidelines

Required Courses

First Year PMCB Courses

Refer to PMCB Curriculum, By-Laws, policies & guidelines for details. Students wishing to join MMG should take CON 662 in their first year.

Required Graduate Courses in Molecular and Medical Genetics

Fall Term 2nd Year:

MGEN 622	Eukaryotic Genetics	3 credits
MGEN 607a	Departmental Seminar	1 credit
MGEN 611	Departmental Grand Rounds	1 credit
MGEN 601	Research	6-10 credits
MGEN 605	Journal Club	1 credit
Elective Courses		0-4 credits
Second Year Fall Term Course Total:		16 credits

Winter Term 2nd Year:

MGEN 611	Departmental Grand Rounds	1 credit
MGEN 607a	Departmental Seminar	1 credit
MGEN 601	Research	9-13 credits
MGEN 605	Journal Club	1 credit
Elective Courses		0-4 credits
Second Year Winter Term Course Total:		16 credits

Spring Term 2nd Year:

MGEN 623	Genetic Basis of Human Disease	3 credits
MGEN 611	Departmental Grand Rounds	1 credit
MGEN 607a	Departmental Seminar	1 credit
MGEN 601	Research	5-9 credits
MGEN 605	Journal Club	1 credit
Elective Courses		0-4 credits
Second Year Spring Term Course Total:		16 credits

Molecular and Medical Genetics Program Guidelines

CELL 618 Mechanisms of Development, 3 credits, Winter (alternate years)

Research Credits

Students who have not advanced to Ph.D. candidacy are required to register for at least 1 research credit per term.

Dissertation Credits

Ph.D. candidates are required to register for at least 1 dissertation credit in the term they begin writing the dissertation and in following term(s), depending on any revisions necessary to the dissertation, until the dissertation is submitted to the library.

Seminar

Students are required to register for and attend the Departmental Seminar, MGEN 607, held at 4 p.m. on Wednesdays and Combined Basic Sciences Seminars when offered at 12 p.m. on Mondays, year two through end of program, including the term registered for dissertation credit. Third year and beyond students are required to give a presentation of their dissertation research once per year. Third year students are expected to give a 30 minute presentation; Fourth year and beyond students are expected to give a 60 minute presentation. No presentation is required during the academic year in which a student expects to defend and graduate.

Journal Clubs

Students are required to register for and attend any basic science journal club at the 600 level, year two through end of program, except for senior students registered for dissertation credit. However, attendance is still encouraged for these students.

Grand Rounds

Students are required to register for and attend Departmental Grand Rounds, MGEN 611, held at 9 a.m. on Thursdays during the second academic calendar year (3 terms total). Grand Rounds is required for completion of the Ph.D.

Course Load

A normal course load is considered to be 9-16 credit hours per term.

Course Waivers

Students who have completed one or more years of full-time graduate training at another institution may be considered for direct admission to one of the Member Departments. Recommendations for admission of such students will be initiated by the appropriate Member Department and must be approved by a majority vote of the PMCB Steering Committee, which will also determine which (if any) PMCB requirements will be waived.

Grading

The School of Medicine requires that a student maintain a grade point average of 3.0. A student with a GPA below 3.0 is automatically put on academic probation and has one term to improve the GPA to a 3.0 or above. If the GPA is not at 3.0 or above within one term, the student may be terminated from the program. (See Bylaws of the Graduate Council, page 10, "Standard of Performance."). Under certain circumstances, a student may be granted up to four academic terms to correct deficiencies that resulted in academic probation. Probationary students who fail to achieve a cumulative grade point average of 3.0 within four terms shall be recommended for dismissal from the graduate program for inadequate scholarship.

Only course work (required and elective), and not research credits, will contribute to the GPA. Students must receive a grade of A or B in the required courses specified in this document. The grade of 'B minus' is unacceptable. If a student does not receive an A or B, the student must repeat the course the following year. The course can be repeated one time only. Failure to receive an A or B the second time the course is taken will result in dismissal from the program. The required courses for which this rule applies are CON 661, 662, 663, 664, 665, 667, 668 and MGEN 622, 623.

The grade Incomplete is reserved for circumstances in which a student is unable to complete the course requirements by the end of the term in which the course is offered due to circumstances beyond his/her control (e.g. illness), AND it is possible to fulfill the remaining requirements within the subsequent term to earn a grade. If a graduate student is having difficulty with a course, he/she may consider formally withdrawing. If the graduate student opts to complete the course, and the resulting grade is unsatisfactory, the student may re-take the course the next time it is offered, not register, and ask that the new grade be substituted for the old by the course director. Withdrawing and grade replacement require approval by the course director and formal notification of the Registrar.

If a graduate student fails a semester of research credits (i.e. receives an NP - No Pass on research), the student is put on immediate academic probation. The student is required to obtain a passing grade in the next term (and subsequent terms) of research credits or the student may be terminated from the Ph.D. Graduate Program in Molecular and Medical Genetics. Pre-qualifying Graduate Students: A pre-qualifying graduate student is required to meet with his/her dissertation advisor immediately upon receiving a failing grade on the research credits in any one term. The advisor in consultation with the Program Director will suggest a course of action that the student must follow in correcting his/her research performance. Post-qualifying Graduate Students: A post-qualifying graduate student, (in consultation with his/her mentor) is to schedule a Dissertation Advisory Committee meeting immediately upon receiving a failing grade on his/her research credits in any one term. This Dissertation Advisory Committee meeting must take place within two weeks of receipt of the failing grade on the research credits. The Mentor and Dissertation Advisory Committee will suggest a course of action that the student must follow in correcting his/her research program.

MMG Seminar, MGEN 607, must be registered for and taken Year 2 through end of program, including the term registered for dissertation credit. Students with more than one unexcused absence during the term will receive a grade of not passed (NP) for the seminar course. Attendance may be excused for illness, major family emergency or attending a regional, national or international scientific meeting. When a seminar is missed, the student should email the MMG Graduate Studies coordinator indicating the reason for not attending the specific seminar session. Performing laboratory studies is not an excuse

Molecular and Medical Genetics Program Guidelines

for not attending the seminar. A graduate student who receives a NP will be placed on immediate academic probation. The student must receive a 'Pass' the subsequent term and every term thereafter.

Genetics Grand Rounds requires documentation of attendance in order to be considered for the grade of 'Pass.' A total of one (1) unexcused absence per term for Genetics Grand Rounds is allowed. A graduate student who receives a NP will be placed on immediate academic probation. The student must receive a 'Pass' the subsequent term and every term thereafter. Following receipt of the first 'No Pass,' a pre-qualifying exam student must immediately meet with his/her dissertation advisor; a post-qualifying exam student must immediately meet with his/her dissertation advisory committee. A plan for insuring the attendance goal for the next term should be designed. Two grades of 'No Pass' in any one of the three activities (Journal Club, Seminar, Grand Rounds) disqualifies a student from taking his/her qualifying exam, resulting in dismissal from the MMG Graduate Program. Two grades of 'No Pass' in any one of the three activities for a post-qualifying exam student may result in dismissal from the MMG Graduate Program.

Course Descriptions

MGEN 601

Research | 1-16 credits

Schedule: All Terms

MGEN 603

Dissertation | 1-16 credits

Schedule: Any Term

MGEN 605E

Molecular & Medical Genetics Journal Club | 1 credit

Course Director: Moore

Schedule: Fall, Winter, Spring

MGEN 606

Mechanisms of Cancer Journal Club | 1 credit

Course Director: Qian, Agarwal

Schedule: Fall, Winter, Spring

MGEN 607A

Departmental Seminar Series | 1 credit

Course Director: Gillingham

Schedule: Fall, Winter, Spring

Seminars presented by students, faculty and visiting speakers on contemporary topics

MGEN 609

Clinical Experience in Medical Genetics | 2 credits

Course Director: Kovak

Schedule: TBA

Introduction to genetic counseling techniques and exposure to various genetic clinical settings

MGEN 610

Molecular and Medical Genetics Program Guidelines

Essentials of Molecular and Medical Genetics | 2 credits

Course Director: Fischer

Schedule: Winter | Tuesday/ Thursday

Introduction to the field of Molecular and Medical Genetics. Discussions are led by senior graduate students and PostDocs with support from faculty mentors in roundtable forum.

MGEN 611

Departmental Grand Rounds | 1 credit

Course Director: Zonana

Schedule: Fall, Winter, Spring

MGEN 615

Cytogenetics Laboratory | (Credits TBD)

Course Director: S. Olson

Schedule: TBA

MGEN 620

Interviewing and Counseling Techniques for Genetic Counseling | 1 credit

Course Director: Kovak

Schedule: TBD

Covers theoretical and practical aspects of the genetic counseling process. Topics highlighted are ethical considerations in genetic counseling, psychological aspects of genetic disorders in individuals and families and the responsibilities and limitations of genetic counselors.

MGEN 622

Eukaryotic Genetics | 3 credits

Course Director: Richards

Schedule: Fall | Monday/Wednesday/Friday

A team of faculty experts discusses topics including chromosomal basis of inheritance, mechanisms of mutation, epigenetics, DNA repair, oncogenes and tumor repressors, cell cycle, yeast genetics, somatic cell genetics, population genetics, mouse model systems, immunogenetics, biomedical informatics and human genome variation. Format is reading and conference style.

MGEN 623

Genetic Basis of Human Disease | 3 credits

Course Director: Richards

Schedule: Spring | Monday/Wednesday/Friday

A team of faculty experts discusses topics including chromosomal basis of disease, cancer genetics, disorders of energy metabolism, amino acid disorders, blood coagulation disorders, congenital heart defects, disorders of extracellular matrix, platelet disorders, endocrine disorders and stem cell/gene therapy. Format is reading, journal club and conference style.

MGEN 624

Gene and Cell Therapy | 2 credits

Course Directors: Nakai and Harding

Schedule: Winter | Monday/Friday

Molecular and Medical Genetics Program Guidelines

The course presents an introductory overview of various gene delivery systems and cell-based approaches; advances in DNA/RNA/peptide delivery, cellular genome engineering and understanding the biology of cells as therapeutics; applications of gene delivery technologies and cell transplantation with a focus on translational research and current issues in gene and cell therapy and regenerative medicine. The course consists of lectures by experts in the relevant fields in a lecture/paper discussion format. Students will be required to write an NIH style research proposal on a relevant topic of their choice and expected to have an oral presentation during the course.

MGEN 625

Epigenetics & Reprogramming | 3 credits

Course Directors: Carbone and Adey

Schedule: Spring | Tuesday/Friday

This course is focused on discussions involving both students and lecturers and covers topics such as: Waddington epigenetic landscape and cell fate, Epigenetics mechanisms: DNA methylation & histone modifications, Non-coding RNAs and epigenetics, X-inactivation and monoallelic expression, Chromatin structure and organization, Epigenetic inheritance: somatic, meiotic and trans-generational, Genomic imprinting, Epigenetic Reprogramming and Environmental epigenetics.

Academic Progress

Students working toward a Ph.D. degree are expected to take the Qualifying Examination for advancement to candidacy by the end of their 12th term of graduate study or they will be recommended for dismissal for failure to progress academically.

Training in the Responsible Conduct of Research

The National Institutes of Health requires continued ethics training for all trainees, fellows, participants, and scholars receiving support through any NIH training, career development, research education, and dissertation research grant (NOT-OD-10-019). To meet this requirement, all graduate students are required to complete CONJ 650 The Practice and Ethics in Science during the first year.

Comprehensive Exam

All first year PMCB students are required to take the comprehensive examination at the scheduled time during their first year of graduate studies. This examination tests the student's ability to think scientifically using concepts covered during the first year of coursework.

Qualifying Exam

Overview

Training within the PMCB culminates with successful completion of the Qualifying Examination, which shall be given at the end of the second year.

The purpose of the Qualifying Examination is two-fold. First, the examination will determine if the student has acquired sufficient knowledge and skills to pursue his or her Ph.D. dissertation work. Second, the exam will provide the student with an opportunity to practice the preparation of a research proposal.

Eligibility

Before taking the examination, the student must have completed the PMCB and MMG course requirements. QBB students joining MMG may take CON 662 in the earliest term offered. In the event that a required course is not offered before the end of the second year, and the student is otherwise prepared to take the candidacy examination, the examination may proceed without completion of the course. However, the required course must be taken prior to the dissertation defense.

Timeline and Description

Specific dates for the exam must be arranged with your department, but the following steps are required prior to completing the QE during Summer term. Extension of deadlines for any reason will only be considered by written request to the student's QEC, program director and PMCB Director. Students may request permission to take the QE earlier than Summer Term. The request must be made in writing to the PMCB Director at least two months prior to the proposed exam date. The request must be pre-approved by the student's advisor and department program director before submission to the PMCB Director.

1. Students submit a two-page, single-spaced prospectus to their department, the PMCB office (pmcb@ohsu.edu) and to all members of their QEC that defines the topic for their QE proposal, describes potential questions to be addressed, and outlines an experimental plan on their topic. Students should also note whether or not the QE subject material is part of their current research. Department program directors will oversee selection of the student's QEC.
2. The QEC, responsible for conducting the student's qualifying examination, is appointed by the department and the student is notified of the names of the panel members. The student is responsible for ensuring all members have a copy of their prospectus.
3. The QEC notifies the student in writing of acceptance or of any weaknesses or specific suggestions for improvement to their proposal.
4. Student schedules a date for the oral examination in consultation with his/her QEC. The students should work with the Dept. Coordinator to reserve a room.
5. Two weeks prior to Oral Exam – Student submits a letter to the QEC from their advisor, describing their role during preparation of the proposal.
6. At least one week prior to Oral Exam – Student submits final written proposal to the QEC and their dissertation advisor.
7. At least ten days before the beginning of Fall term – Oral examinations completed.

Role of Advisor/Mentor

To facilitate an objective examination, the student's mentor is not permitted to edit or comment on the written proposal. Neither is the mentor, nor any other faculty member, permitted to coach the student in a rehearsal of their oral presentation. The student must submit a signed letter from their dissertation advisor describing in specific detail the role of the advisor and of the student in the development of the hypothesis and research plan in this proposal. The advisor must confirm that they have NOT contributed to the written portion of the exam, and that the student has NOT used any of the advisor's prose within

the proposal. The QEC has two weeks from receipt of the written proposal and advisor letter to request more information from the student's advisor if deemed necessary.

Format of Written Proposal

The proposal shall be written following current general guidelines of a NRSA application. It is the student's responsibility to check on the guidelines, which are available on the NIH website. It shall consist of a hypothesis-driven series of experiments bearing directly on the question or hypothesis of the proposal, with a discussion of probable outcomes, interpretations and alternative approaches. The proposal shall be no longer than 7 pages, including figures (single-spaced; 1 page for the specific aims section and 6 additional pages for the rest of the grant). References are not included in the page limit. Students may discuss topics and proposed experiments with all sources (fellow students, post-doctoral fellows, faculty, and visiting scientists), but none of them may be involved in any aspect of the student's written proposal. Students may also seek general assistance in scientific writing and proofreading. However, it must be remembered that the written proposal is an examination, and must represent the student's ideas and development of the research topic. Students are expected to adhere to established guidelines for professional ethical conduct in the preparation of their QE proposal topics.

Format of Oral Exam

The oral examination will probe the breadth of the student's knowledge and also the depth of the student's understanding of his/her research proposal. Students are expected to begin the oral examination by giving a short (20-30 minute), formal presentation summarizing the written proposal. Audio-visual aids may be used during the summary of the proposal. During the oral examination by the panel, the use of prepared visual aids, textbooks, or other reference material is not permitted. Slides and figures from the oral summary may be referred to if they are the subject of a question from the exam panel. Questions from the Examination Panel should focus primarily on issues pertaining to the proposal; however, the student is responsible for all areas of cellular and molecular biology that have been covered during the first two years of graduate study. Therefore, students also should expect questions on general knowledge in addition to questions relating to the scientific background pertinent to their areas of specialization, as well as more general issues related to the proposed experiments. Students may be asked about the choice of methodologies, their relative advantages and disadvantages, and potential alternative strategies (when appropriate). Students will be expected to understand and be ready to explain the scientific basis of technical methods they intend to employ. The student should be prepared to discuss the rationale for the proposed study, the strengths and limitations of the proposed experimental strategies, and potential pitfalls and alternatives.

During the oral portion of the examination, the student will be expected to make a presentation of the research proposal that should be no longer than 30 minutes. The presentation is followed by questioning that may cover all areas of genetics and molecular biology relating to the written proposal as well as general knowledge of molecular and medical genetics.

Preparation for Oral Exam

Students should be thoroughly familiar with key historical and background publications that provide the foundation for their proposal, as well as any current literature that directly pertains to their specific aims. In addition, students are encouraged to review the more general areas of cellular and molecular

Molecular and Medical Genetics Program Guidelines

biology that provide the conceptual framework for their proposal. Once a student has submitted their final written proposal to their QEC, they may contact panel members for guidance in preparing their oral exam presentation.

Checklist for Qualifying Examination

This checklist is general and is based on summer term. Check the OHSU Academic Calendar for specific dates.

Eligibility

_____ All required PMCB conjoint & MMG course requirements fulfilled

(Note- MMG 4cr elective may be taken after quals)

_____ PMCB Comprehensive Examination passed

_____ Student is in good academic standing

_____ No incomplete grades on transcript

Timeline- Before Summer Term Begins

_____ Student suggests the names of potential QEC members to the Program Director

(Note- There is no obligation on the department to select suggested individuals for QEC)

_____ Program Director appoints QEC, QEC members' availability is confirmed by Grad Program Coordinator, student is notified of QEC members

_____ QEC Chair selected by Student & Program Director

_____ Student reviews Qual Exam Guidelines & understands PMCB/ MMG Program expectations

Timeline- During Summer Term

_____ Mid-July - Submit prospectus to program, PMCB office & all QEC members

_____ Before August begins- The Chair of the QEC notifies student of acceptance or weaknesses/ suggestions to improve

_____ Before the second week in August- Student schedules date of oral exam w/ QEC & Grad Program Coordinator

Note- schedule 3 hours

_____ At least one week prior to Oral Exam – Student submits final written proposal to QEC & mentor

_____ At Oral Exam- Student provides the letter from mentor to QEC stating student's proposal was written independently.

_____ Before mid-September- Oral examinations are complete

Outcomes Upon Successful Completion

_____ Outcome of “Pass” is communicated in writing to student, dissertation advisor & PMCB by QEC Chair; student is eligible for recommendation for advancement to candidacy

See PMCB Academic Guidelines for information on outcomes of “Conditional Pass” & “Fail”

_____ Signed PMCB Qual Exam form returned promptly to the PMCB office

_____ PMCB Director signs PMCB Qual Exam form & forwards form to relevant program

_____ Department Chair or Program Director recommends student for advancement to Ph.D. candidacy, outcome certified in writing by the MMG Program Director

Outcomes

The outcome of the Qualifying Examination must be certified in writing both by the Member Departmental Graduate Director and by the PMCB Director, who will also confirm successful completion of all other PMCB requirements. After certification of successful completion of the Qualifying Examination, responsibility for overseeing fulfillment of remaining requirements for the Ph.D. degree resides with the Member Department.

Advancement to Ph.D. Candidacy

Admission to a Ph.D. program does not automatically identify a student as a degree candidate. Students must first be admitted to candidacy for the Ph.D. degree. Advancement is granted only after the student has demonstrated knowledge of the fundamentals of his or her field and the ability to do work of graduate caliber.

The MMG Graduate Director has responsibility for recommending students for advancement to Ph.D. candidacy when all of the program’s other academic requirements have been met, as specified in the Graduate Council By-Laws.

Dissertation Advisory Committee (DAC)

DAC Formation

Within three months of passing the Ph.D. Qualifying exam, the advisor and student must submit a suggested dissertation advisory committee to the Departmental Graduate Director for approval.

The Director will send a memo approving the committee to the student and dissertation advisor. This memo will be placed in the student’s file in MMG.

The OHSU Graduate Studies Guidelines for the composition of the committee should be followed. MMG requests that in addition to those guidelines that students have the following: at least one member of the committee with an appointment (primary or affiliate) in MMG and at least one member, other than the advisor, must be experienced in advising a Ph.D. dissertation student; that is, he/she must have been a mentor for at least one student who has successfully completed his/her Ph.D. The DAC chair must be experienced in advising a Ph.D. dissertation student.

Student Responsibilities

The responsibilities of the student are:

1. To schedule the meetings in a timely fashion and in accordance with the guidelines set forth in this Handbook.
2. Prior to each DAC meeting, the student will prepare an overview of recent research accomplished. The purpose of this is to provide the DAC with an update on previous goals that were stated and how these goals were met (or if not, the reasons for not achieving the goals). This must be sent to each committee member.
3. Students should prepare an oral presentation encompassing dissertation research goals and accomplishments (usually ~ 30 minutes). Students are encouraged to schedule these meetings to coincide with their departmental presentations when possible. Following the presentation, there will be a 1-1.5 hr. discussion with the Committee.
4. Students should prepare, in consultation with the DAC, a DAC summary including a tentative date for the next committee meeting. This DAC summary must be sent to each committee member for approval. The final summary must be sent to the Graduate Student Coordinator and program director within 3 days following the committee meeting. Electronic submissions are acceptable.
5. Students must meet with their DAC at least twice a year after the initial meeting with at least one formal DAC meeting. Additional meetings may be scheduled by the student or by the mentor or by the members of a DAC to ensure the student's progress towards their PhD.

Committee Responsibilities

Expectations and Responsibilities of the DAC:

The purpose of a DAC committee is to provide expertise/guidance to the graduate student regarding their dissertation research and to identify any problems or obstacles that arise.

1. As members of a student's DAC, faculty are expected to attend all meetings and be available to the student for further discussions.
2. A first time committee member should schedule a time to meet with the program directors to discuss the expectations and responsibilities of DAC faculty.
3. Committee members are expected to review materials from the student in a timely manner and provide constructive feedback.

At the final DAC meeting prior to a student's dissertation defense, it is expected that the student will receive unanimous approval from the committee that no additional experiments are necessary and that the student is ready to complete their dissertation. If there is not unanimous consent, further meetings may be necessary and the Director of Graduate Education may be called to mediate the discussions. There may not be additional committee members added after this final meeting and decision to move forward.

Formation of Oral Examination Committee

Once all Dissertation Approval Forms have been submitted, the student will submit to the GSC the Graduate Studies Program "Request for Oral Examination" form that lists the members of the Dissertation Examination Committee, which may include some or all of the Dissertation Advisory Committee members, noting the Dissertation Examination Chairperson in the area provided on the Dissertation Approval Form. The Chairperson must be a Graduate Faculty member but cannot be a member (or a joint appointee) of the Department of Molecular and Medical Genetics nor can the Chairperson be the student's mentor. In addition, the SOM requires appointment of an examination committee member NOT a member of the Dissertation Advisory Committee and who cannot be assigned as the Committee chair.

Oral Examination

Doctoral candidates must be the primary contributor to the design of the experiment(s), in the collection, analysis and interpretation of the data, and in the writing of the thesis or dissertation document. Specific details of any technical assistance, together with acknowledgment of the individual(s) who provided the assistance, must be included in the text of the document. In the absence of such acknowledgments, it is assumed that all data presented in the document were collected directly by the candidate. Similarly, the source of any special materials used in the project (e.g., antisera, probes, reagents, cell lines) must be specifically acknowledged in the text of the document. In the absence of such acknowledgments, it is assumed that all special materials described in the document were developed or prepared by the candidate.

The student will register for dissertation credit during the term(s) dedicated to writing the document and defending the dissertation. The hours for which the student registers should be decided in consultation with the mentor.

Preparation and Submission

All instructions and guidelines adopted by the Graduate Council By-Laws shall be followed carefully. In addition, the Department of Molecular and Medical Genetics requires the following actions in order for the student to present his/her dissertation:

1. Prior to submission to the student's DAC, the dissertation must be reviewed thoroughly by the student's mentor. At least two weeks prior to the intended defense date, the student shall submit to the Graduate Student Coordinator (GSC), in person, as many copies of his/her dissertation in "near" final form as necessary (one copy per Dissertation Advisory Committee Member). At this point the dissertation must be a near-final version, for which only minor revisions will be necessary. All illustrations and legends need to be enclosed at this time. It is in the student's best interest to submit a well thought out, prepared dissertation in order to prevent further time delays. The student or GSC will then submit a copy of the dissertation to each of the graduate student's Dissertation Advisory Committee Members with an MMG Dissertation Approval form attached.
2. The Dissertation Advisory Committee Members shall have up to two weeks to review the dissertation and return it to the student with his/her comments and guidelines for revision. Revision is expected for the written part of dissertation only, requiring no further experiments. The Oral Advisory Committee members must sign off on the MMG Dissertation Approval form following the two-week review if they

Molecular and Medical Genetics Program Guidelines

consider that the dissertation is in final form. All members of the Dissertation Advisory Committee must sign the Dissertation Approval Form. It is the responsibility of the student to ensure that each committee member has signed the form and that all forms are returned to the GSC. All Dissertation Advisory Committee Members must be in unanimous agreement that the dissertation is at least satisfactory.

3. Once all Dissertation Approval Forms have been submitted, the GSC will advise the MMG Director of Graduate Education (DGE) that the dissertation is in essentially final form and that the student's body of work clearly indicates that the student is ready to proceed to the next step, namely the seminar and defense.

4. At this time, the student will submit to the GSC the Graduate Studies Program "Request for Oral Examination" form that lists the members of the Dissertation Examination Committee, which may include all Dissertation Advisory Committee members, noting the Dissertation Examination Chairperson in the area provided on the Dissertation Approval Form. The Chairperson must be a Graduate Faculty member but cannot be the student's mentor. In addition, the SOM requires appointment of an examination committee member NOT a member of the Dissertation Advisory Committee and who cannot be assigned as the Committee chair.

5. The GSC will complete the Request for Oral Dissertation Examination Form and submit it to the DGE for signature. The GSC will then forward it on to the Graduate Studies office. The submission of this form to the Graduate Studies office must be at least four weeks prior to the date of the exam. It is recommended that at this time, the student submit a copy of his/her revised and approved dissertation to the GSC for distribution to the Dissertation Examination Committee. The student must submit his/her approved dissertation no later than two weeks before the examination for the exam to take place as scheduled. The GSC will record the date of submission and make sure that the student is in compliance with these guidelines. If the student is not in compliance with these guidelines, the GSC will notify the DGE. The DGE will then determine the proper course of action with the possibility of postponing the exam until the Committee has had at least two weeks to review the dissertation (dependent upon the Committee Members availability).

Dissertation Seminar

The exam must be held on campus and be open to the public. The Program is responsible for setting the date, time and place of the exam and for posting notices on campus.

Finalizing Ph.D. Requirements

OHSU awards diplomas each term, based on the completion of final paperwork and dissertation binding. The following requirements must be completed within one month following the completion of the Dissertation Presentation and Defense:

1. Corrections to Dissertation. If necessary following the dissertation seminar, make any minor corrections to the dissertation. All members of the Examination Committee who recorded a satisfactory vote for the oral examination must sign the CERTIFICATE OF APPROVAL page. Signing of the approval page indicates that all required corrections have been completed.

Molecular and Medical Genetics Program Guidelines

- a. All required corrections must be completed and approved by the Examination Committee within 3 months after the Oral Exam.
 - b. Failure to submit an approved dissertation within this time limit will void the oral exam, and the oral examination would have to be retaken.
 - c. The ORIGINAL of the signed CERTIFICATE OF APPROVAL page must be taken to the OHSU Library with the read to bind dissertation.
2. Dissertation Submission. At least three electronic copies of the dissertation must be submitted: one copy is deposited in the OHSU Library, one copy is for the Program, and one copy is for the student's mentor.
 3. Application for Degree. The Office of the Registrar requires that the APPLICATION FOR DEGREE form be completed and turned in to the Registrar's Office one term prior to completing degree requirements.
 4. Exit Contact Information Form. Complete and send this required form to the Graduate Studies Office.

Students must complete all requirements before the School of Medicine deadline in order to participate in the graduation ceremonies in June of the same year.

Terminal Master's Degree

The OHSU Department of Molecular and Medical Genetics does not routinely offer a master's degree. Under special circumstances, a graduate student may petition the ad hoc Graduate Education Committee in writing to allow the student to complete a terminal master's degree. Approval of this request by the Graduate Education Committee must be unanimous. The ad hoc Graduate Education Committee will consist of the program directors and the student's DAC members.

In the rare case where a master's degree is offered, the student is required to pass a candidacy examination, following the same procedures as outlined for a doctoral candidacy examination. The same rigorous standards apply to student performance in a master's candidacy examination as in a doctoral candidacy examination. Students failing a candidacy examination will not be candidates for a master's degree. A written dissertation is required to earn a master's degree. In addition, a master's dissertation defense examination must take place, with the same requirements as for the doctoral dissertation, except the number of credit hours required (45 vs. 135 credit hours). A dissertation advisory committee is required, the composition of which is in keeping with section IV of these guidelines.

Ethical and Professional Behavior

In compliance with federal regulation and OHSU institutional policy, all investigators, research staff, and other relevant personnel (those reasonably involved in the design and/or conduct of human, animal, applied and/or basic science research) must complete OHSU's Responsible Conduct of Research (RCR) education.

All Doctoral and Master's students are required to successfully complete at least one course in ethics and professional conduct or be exposed to equivalent content.

Graduate Student Stipends

Refer to Graduate Studies Policies and Guidelines for PhD Student Stipend Information.

Travel to Scientific Conferences

The Department of Molecular and Medical Genetics will award travel monies to students on a competitive basis to help cover the cost of conference travel during an MMG graduate student's training. A student may receive only one award per year and may be eligible for a maximum of 2 awards over the course of their PhD training. Travel awards will be limited to \$1500 per trip and be contingent upon the student having passed the Qualifying exam and being in good academic standing.

An application must be submitted to the program directors and should include: a description of the conference, the location, date, and estimated cost. Students are encouraged to apply for travel awards from the conference organizations and the OHSU Tartar. The intent of the award is for the student to gain exposure at a scientific conference by presenting a poster or platform presentation.

Time Limit for Completing Degree Requirements

For the Ph.D. degree, 135 approved graduate credits are required. Graduate credit toward Ph.D. degree requirements shall be granted only for course work completed during the 8 calendar years (32 terms) prior to completing all degree requirements.

Extracurricular Employment

The Department of Molecular and Medical Genetics considers enrollment as a graduate student in the Ph.D. program to represent full time employment. Students are strongly discouraged from seeking outside employment. Any student wishing to pursue outside employment must submit a written request to the DAC and/or mentor, the Director of Graduate Education and the Chairman of MMG. The student must receive written authorization from the above individuals prior to accepting employment such as teaching for Saturday Academy or paid internships.

Sick Leave, Vacation, and Leave of Absence

Graduate students with stipend support who are enrolled in Ph.D. programs in the School of Medicine may take up to 20 days of sick leave with pay per academic year (July 1– June 30). Sick leave accrues at the rate of 1.25 sick days/month. Additional sick leave or other "leave of absence" must be without pay. Extended leaves of absence must follow a formal petition and/or filing process through the MMG department and the SOM Associate Dean of Graduate Education office.

The student should request vacation time in writing to his/her mentor at least two weeks in advance. For additional information see the School of Medicine Graduate Student Vacation and Sick Leave Policy.

Vacations and Holidays

Students and mentors are expected to be both reasonable and flexible in making decisions about the student's commitments of time to course and laboratory work, as well as other training-related activities. Graduate students who receive stipend support will not accrue paid vacation leave. Students are entitled to the normal holidays in the academic calendar. The time between academic quarters is to be used as an active part of the student's training.

Leave of Absence

Molecular and Medical Genetics Program Guidelines

All students admitted to the graduate program must be continuously enrolled until graduation, except for periods in which they are absent for an approved leave of absence. Taking a minimum of 1 credit per term during the regular academic year (Fall, Winter and Spring terms) will constitute continuous enrollment according to SOM Graduate Studies By-Laws. Registration during the Summer term is not required to meet the continuous enrollment requirement, although it may be required by the student's graduate Program. Failure to register without an approved leave of absence will result in administrative withdrawal of the student's admission to a graduate program.

Dismissal

Refer to Graduate Council Bylaws for information on dismissal.

Grievances

The procedure for handling grievances is outlined in the Graduate Council Bylaws.

Exceptions

In matters related to coursework, exceptions must first be approved by the Course Director and the Program Director. Other exceptions must first be approved by the Program Director.