



UNIVERSITY *of* MARYLAND  
*Graduate Program in Life Sciences*

PROGRAM  
IN EPIDEMIOLOGY &  
HUMAN GENETICS

STUDENT &  
FACULTY  
HANDBOOK

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## 1. HISTORY OF HANDBOOK UPDATES

### Modifications made to the August 2017 version for the 2017-2018 version:

Sections	Brief Description of Modification
2	Mona Baumgarten was replaced by Ann Gruber-Baldini as of 2/1/17, and Mary-Claire Roghmann was replaced by Kristen Stafford as of 7/1/17. Added Jennifer Albrecht as acting track leader. Email addresses were also updated due to move in epi to som.
8, Table 1, Table 3	MS Clinical research course change (633 now 2 credits and 706 removed as requirement)
9.2,9.3, Table 5	Comprehensive examination changes (substantial) for epidemiology and molecular epidemiology track students based on feedback from comps committee
9.4	Clarified that rotations apply to full-time students only

### Modifications made to the August 2015 version for the 2016-2017 version:

Sections	Brief Description of Modification
All	Changes were made to ensure consistent use of terminology, to re-order sections in a more logical way, and to make the document more concise and less redundant. These edits are not enumerated because they apply only to the style and organization of the document and not to changes in program requirements or policies.
All	Previously, some Graduate School forms appeared on both the Graduate School website and the program's website. To avoid confusion, we will remove Graduate School forms from the program's website. In this version of the handbook, all links to Graduate School forms go to the Graduate School website.
All	To avoid redundancy and possible inconsistencies, descriptions of policies that are entirely governed by the Graduate School have been shortened or removed from the handbook. In these cases, references to the appropriate Graduate School documents are provided.
3, Tables 1 and 2, 10, 10.1.3	We have clarified that the MS in Epidemiology and Preventive Medicine has been phased out. There are now two MS degrees, the MS in Epidemiology and Clinical Research with two tracks (one in Epidemiology and one in Clinical Research) and the MS in Human Genetics. All three MS degrees now have a 30-credit course requirement. Both tracks in the MS in Epidemiology and Clinical Research have a thesis and a non-thesis option. Students taking the non-thesis option complete Research Practicum I and II in lieu of the thesis. The MS in Human Genetics has only a thesis option.
4.1	We have clarified that once the student is in the thesis or dissertation phase, the research advisor also fulfills the role of academic advisor.
4.2	We have added expectations regarding secure use of technology, use of university email accounts, updating of student databases such as MedScope, completion of all components of the annual progress report, and completion of course evaluations.
5.1	We have added clarifications about Graduate School deadlines and have clarified that deadlines are not altered by leaves of absence or part-time status.
5.2	We have added instructions for requesting leave of absence, for requesting transition from full-time to part-time status or vice versa, and for registering for a course at another University System of Maryland campus.
5.4, 5.5, 5.6	Numerous clarifications have been added to the sections on course waivers and course transfers. If approval from the course master is required, it should be obtained prior to (not after) requesting the Program Director's approval.
5.10	We have added a recommendation that students use plagiarism detection software to avoid unintentional plagiarism in their Dissertation Proposal and dissertation.
6.2	We have clarified that student teaching is required for PhD students in the Epidemiology and Molecular Epidemiology Tracks (regardless of funding source and regardless of full-time/part-time status) and is recommended for PhD students in the Human Genetics Track. The expectation is approximately five hours per week on average, starting in the fall semester of the second year. We have provided more details on how TAs are matched to courses.
6.3	We have clarified the purpose of the original data collection requirement (for PhD students in the Epidemiology and Molecular Epidemiology Tracks) and have provided criteria for approval.

Sections	Brief Description of Modification
7	<p>Instructions for submitting funding-related paperwork have been clarified and updated. We have clarified that:</p> <ul style="list-style-type: none"> <li>• Self-funding for PhD students is an option only for part-time students.</li> <li>• International PhD students may not qualify for all sources of funding.</li> <li>• Mentors may assign up to 20 hours per week of work that is not related to the student's progression toward a degree and all the remaining time (except that devoted to coursework and teaching assistantships) must be devoted to the student's research.</li> <li>• Students should share the Mentor Support Information Sheet with potential dissertation mentors.</li> <li>• Mentors must cover the cost of stipend, tuition and health insurance and may (but are not required to) cover the cost of student fees and auxiliary benefits.</li> </ul>
7, 9.1, 9.4	<p>We have clarified that graduate research assistantship support is for 16 months and ends at the end of December (not the end of February) of the student's second year in the program.</p>
Table 1	<p>The following changes were made.</p> <ul style="list-style-type: none"> <li>• PREV 617 was deleted as this course is no longer offered.</li> <li>• The course name for PREV 648 was corrected.</li> <li>• PREV 706 is now offered in the spring semester and is no longer a four-day course.</li> <li>• A new course, PREV 710 (required for the MS, Clinical Research Track), was added.</li> <li>• PREV 803 is offered in the spring (not the fall) semester.</li> <li>• The research ethics requirement for the MS (Epidemiology Track) and the PhD (Epidemiology and Molecular Epidemiology Tracks) is met by CIPP 907 (not for credit) or equivalent. The research ethics requirement for the MS (Clinical Research Track) is met by CIPP 907 or CIPP 909 (for credit).</li> <li>• Molecular biology and human physiology courses are no longer a degree requirement.</li> <li>• The minimum number of elective credits for the PhD Epidemiology Track was changed from 7-8 to 8.</li> <li>• A note was added reminding students that some courses may not be offered every year and that they should check each semester's course offerings.</li> <li>• Reference to concentration coursework credits for the MS (Clinical Research Track) was deleted.</li> </ul>
Table 2	<p>The following changes were made.</p> <ul style="list-style-type: none"> <li>• HGEN 711 and HGEN 717 were corrected and are now PREV 711 and GPILS 717, respectively.</li> <li>• GPILS 718 was added as an elective.</li> <li>• The research ethics requirement is met by CIPP 907 (not for credit) or equivalent for both MS and PhD students.</li> <li>• A note was added reminding students that some courses may not be offered every year and that they should check each semester's course offerings.</li> </ul>
Tables 3 to 7	<p>We have added tables to display the typical sequence of required courses for the MS and PhD, non-course degree requirements for the MS and PhD, the program's recommended time line for completion of the PhD degree, and the Graduate School's deadlines for completion of the PhD degree.</p>
9.1	<p>We have clarified that, for students in the PhD program, there are required courses and a minimum number of elective credits but there is no specific requirement regarding the total number of credits. We have removed the list of pre-approved electives.</p>
9.3	<p>We have clarified that:</p> <ul style="list-style-type: none"> <li>• For the Epidemiology and Molecular Epidemiology PhD Tracks, it is the Program Director, not the Graduate Program Committee, who appoints the comprehensive exam committee.</li> <li>• For the Human Genetics PhD Track, the track leader appoints the committee.</li> <li>• Exam results are sent individually to the students who took the exam. The results are no longer announced publicly.</li> <li>• The exam can only be repeated once.</li> <li>• Part-time students are not required to take the exam in January of the second year.</li> </ul>
9.4	<p>In the Epidemiology and Molecular Epidemiology Tracks, there are now three five-month (not six-month) rotations. Modifications regarding the required number of rotations may be approved by the student's track leader on a case-by-case basis.</p>

<b>Sections</b>	<b>Brief Description of Modification</b>
9.6, 10.1.1	More details about the purpose and suggested structure of the Research Abstract have been added.
9.6	We have clarified requirements regarding the composition of the dissertation committee and that, when submitting the Research Abstract, the student should indicate the Graduate Faculty status of each member of the proposed dissertation committee. If substantial changes are made to the research plan or dissertation committee after the Research Abstract has been approved, a revised abstract must be submitted.
9.7, 10.1.2	We have clarified that the General Research Plan should be no longer than 10 pages for all the PhD tracks and that no more than three General Research Plans are reviewed at a given Graduate Program Committee meeting. New procedures have been added regarding oral presentation of the General Research Plan at the Graduate Program Committee meeting.
9.7, 9.9, 9.10	Recommendations regarding the format and frequency of meetings between the student and the dissertation committee have been added.
9.7.1	We have added the following question to the criteria for the GRP: Is the student's proposed work distinct from that of the rest of the research group with which the student is working?
9.7.2, 10.1.2	Formatting instructions for the GRP have been added.
9.9	We have removed the recommendation that the dissertation proposal should be at least 30 pages long and have added rough guidelines for the number of pages for each section.
9.9.1	We have added a recommendation that the student inform the Academic Coordinator as soon as a date has been identified for the Proposal Defense so that a room can be reserved and announcements distributed. We have added clarifications about the conduct of the defense and the role of the GPC member. We have specified that if the student fails, he or she may be allowed to repeat the Proposal Defense.
9.10.1	We have recommended campus resources to help students with their writing skills.
9.11, 9.12	Suggestions have been added to help PhD students prepare for graduation and for the conduct of the Dissertation Defense. We have clarified that, if the student fails, he or she may be allowed to repeat the Dissertation Defense.
10.1	We have removed the requirement that MS students must submit the Research Abstract and GRP at least one semester before graduation.
10.1.2	We have clarified that the GPC reviews MS students' GRPs.
10.1.4	Changes have been made to the guidelines for selection of the MS thesis committee.
10.1.5	Details have been added regarding the conduct of the MS Thesis Defense.
10.2.1	Suggestions have been added to help MS students prepare for graduation.
11, 11.1, 11.2	Changes have been made regarding the composition of the dissertation committee of students in the dual degree programs, in the application process, and in the process for approving the dissertation committee.
11.2.1	Changes were made to the course requirements for students in the PHSR dual degree program.

Note: In general, policy changes are effective immediately for all current and future students. However, if an existing policy is replaced by a new policy that is more stringent, current students may continue to operate under the previous policy.

## 2. INTRODUCTION

These guidelines are specific to the graduate program in Epidemiology and Human Genetics (EHG) and are intended to supplement (not override) the policies of the Graduate School of the University of Maryland, Baltimore and the Graduate Program in Life Sciences (GPILS). All students must observe the policies described in the Graduate School's most recent graduate catalog and on its website (<http://www.graduate.umaryland.edu>) and the policies presented on the GPILS website (<http://lifesciences.umaryland.edu>).

We encourage students or faculty members who have questions after reviewing this handbook to speak with any of the following members of the program's staff and leadership:

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## 3. PROGRAM DESCRIPTION

The graduate program in EHG within GPILS at the University of Maryland School of Medicine offers a diverse array of integrated opportunities to develop skills for discovering how population, molecular, and genetic variations relate to health and disease. These skills are essential for translating new basic research findings into clinical practice and applying them to public health. New findings from epidemiology and human genetics research consistently make the news. Students in this program become leaders in improving the health of local, regional, and global populations. The program combines traditional areas of biomedical, genetic, clinical, and community studies with opportunities to learn and apply observational, biostatistical, molecular, and genomic tools in their investigations.

The PhD program consists of three tracks: Epidemiology, Molecular Epidemiology, and Human Genetics, each with a tailored program of study. There are two MS degrees, the MS in Epidemiology and Clinical Research with two tracks (one in Epidemiology and one in Clinical Research) and the MS in Human Genetics. Dual degree programs enable students to earn an MS degree in combination with one of several PhD programs. More information on the program and tracks is available on the program's website (<http://lifesciences.umaryland.edu/epidemiology/>).

**The PhD in Epidemiology and Human Genetics (Epidemiology Track)** allows students to acquire advanced knowledge, skills, and experience in completing independent epidemiological research in a biomedical setting. This track has a strong quantitative focus, necessary for providing students with the tools needed to conduct world-class research on epidemiologic topics and to participate in multidisciplinary research in a broad range of specialties.

**The PhD in Epidemiology and Human Genetics (Molecular Epidemiology Track)** is designed for students who wish to undertake research that combines molecular, genetic, and epidemiologic techniques and to apply these technologies to the understanding of risk factors for disease transmission or acquisition. Students in this track are provided with a solid knowledge base in epidemiology and biostatistics, while also gaining the laboratory and informatics skills needed to incorporate genomic data into their research.

**The PhD in Epidemiology and Human Genetics (Human Genetics Track)** provides broad training for students wanting to understand human genetic variation and its relation to health and disease. Students first receive an overview of human genetics (molecular, biochemical, clinical, cytogenetics, and genetic epidemiology/genomics) and then specialize in their particular areas of interest.

**The MS in Epidemiology and Clinical Research (Epidemiology Track)** is designed to offer an MS degree to students pursuing a PhD in Gerontology or Pharmaceutical Health Services Research as part of our dual degree programs. Also, students wishing to leave the Epidemiology and Human Genetics PhD program can opt to get the MS in lieu of their PhD.

**The MS in Epidemiology and Clinical Research (Clinical Research Track)** is designed specifically to meet the needs of the clinician or clinician-in-training by providing a combination of coursework and research experiences needed for a successful career in clinical investigation. Students may select from multiple concentration areas: epidemiologic research, patient-oriented research, outcomes/health services research, human genetics, and research ethics.

**The MS in Human Genetics** is designed for students contemplating careers in human genetics, especially as it relates to health and disease. This track includes coursework, seminars, and supervised research culminating in a thesis.

**Dual Degrees:** The EHG program offers a dual degree for students enrolled in the Gerontology or Pharmaceutical Health Services Research doctoral programs. Doctoral students in these programs may earn an MS in Epidemiology and Clinical Research (Epidemiology Track) in addition to their PhD degrees.

## 4. EXPECTATIONS

### 4.1. Expectations of Academic Advisors

Upon entering the graduate program, students are initially mentored by the leader of their MS or PhD track. Students later identify a research advisor who mentors them through their MS thesis or PhD dissertation project and who chairs their thesis or dissertation committee. Once the student is in the thesis or dissertation phase, the research advisor also fulfills the role of academic advisor. Note that, if

the research advisor is not affiliated with the EHG program, the student must also have an academic advisor from within the program.

The role of the academic advisor is to serve as a resource for students on academic matters. Initially, this includes helping with orientation to the program, course selection, identifying potential rotations, and choosing a research topic and research advisor. Specific expectations for academic advisors are provided below.

- The academic advisor should be available to answer the student's questions in person or by email or telephone. The academic advisor should meet with the student regularly, no less often than once per semester.
- The academic advisor should assist the student with course selection and planning. This includes ensuring that the student takes all courses required for his or her track and selecting electives that are appropriate for the student's research and career goals.
- Academic advisors should be familiar with the student's timeline and milestones so that they can provide guidance and assess the student's progress in courses, rotations, identification of a research topic and research advisor, and progression through thesis or dissertation research.
- The academic advisor should review the student's grades after each semester. Many classes have prerequisites that include having performed satisfactorily in previous courses, and academic advisors should assure that students are meeting these requirements.
- The academic advisor should help the student focus his or her interests and suggest research opportunities and faculty members who could serve as rotation mentors and dissertation advisors.

#### **4.2. Expectations of Students**

All members of our professional community, including students, are expected to maintain a high level of professionalism in terms of communication, behavior, and dress, and to treat faculty, staff, and fellow students with respect. Concerns about the program should be communicated in a respectful and professional manner and physical surroundings should be kept clean and in order, especially when sharing space with other individuals. In addition, students are expected to:

- Follow all School of Medicine policies regarding the secure use of technology (<http://www.medschool.umaryland.edu/IS/Policies--Procedures>).
- Reply promptly to email from faculty and administrative staff. (Note that all important campus related email will be sent to the student's [@umaryland.edu](mailto:@umaryland.edu) account.)
- Notify the Program Director, Track Leader, Academic Coordinator, course instructors, and mentors if there is a change in email address or other contact information.
- Post a vacation message when they plan to be away from email for more than 24 hours.
- Respond promptly to requests for information including regular updates to student tracking databases like MedScope.
- Complete all components of the annual progress report (Student Progress Report Form, Individual Development Plan, NIH biosketch, and curriculum vitae), review it with their academic advisor, and submit it before the deadline.
- Attend scheduled classes, meetings, departmental seminars and journal clubs.
- Inform instructors if they must miss a class.
- Arrange weekly schedule and vacation schedule with their rotation mentor or research advisor.
- Provide anonymous course evaluations at the end of every course taken. (Note that course evaluations are due on the last day of the semester and grades will not be released until the student has completed the course evaluations on Blackboard.)

## **5. POLICIES AND PROCEDURES**

### **5.1. Performance and Progress**

The Graduate School requires that students in the MS and PhD programs maintain a minimum grade point average (GPA) of 3.0 on a 4.0 scale and must obtain a grade of B or higher in all courses that are

required for their track. Students must register for every fall and spring semester, unless on a leave of absence that has been approved by the student's academic advisor and the Program Director. For the MS degree, all requirements must be completed no later than five years from the first semester of enrollment. For the PhD degree, students must be admitted to candidacy no later than five years from the first semester of enrollment and no later than two full semesters before graduation. PhD students must graduate no later than four years following admission to candidacy. For further details, please visit the Graduate School website (<http://www.graduate.umaryland.edu/Policies/>) and click on the link for "Academic Performance and Progress in Master of Science Programs" or "Policy on Academic Performance and Satisfactory Progress in University of Maryland Baltimore PhD Programs".

The deadlines for completion of the MS and PhD degrees are not altered by leaves of absence or by a student's part-time status.

## 5.2. Registration

All graduate students are responsible for registering for classes each fall and spring semester unless a leave of absence has been approved. There are several steps to the registration process:

- Students should schedule a meeting with their academic advisor at least eight weeks before the start of each fall and spring semester.
- During the meeting with the academic advisor, students should discuss the courses that they intend to take during the upcoming semester. Academic advisors should sign the student's Course Registration Request Form (<https://graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/CRF.pdf>) to indicate their approval of the proposed coursework.
- Student registration through the online registration system is locked by default. Once the academic advisor has approved the coursework for the following semester, the Course Registration Request Form should be submitted to the Academic Coordinator. Registration will then be unlocked.
- Students must log on to the Student User Friendly System (SURFS) website (<http://www.umaryland.edu/surfs/>) to complete the registration process at least six weeks before the start of the semester.
- Students who wish to request a leave of absence should submit a Leave of Absence Request (<https://graduate.umaryland.edu/Forms/>) to the Academic Coordinator at least six weeks before the start of the semester for which the leave is being requested.
- Students who wish to transition from full-time to part-time status, or vice versa, should contact the Program Director and Academic Coordinator at least six weeks before the start of the semester to request approval for the transition and, if necessary, to schedule a meeting to discuss the student's situation.

Students wishing to register for a course at another University System of Maryland campus should complete the Application for Inter-Institutional Enrollment ([https://graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/InterInstitutional\\_Enrollment\\_Form.pdf](https://graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/InterInstitutional_Enrollment_Form.pdf)) and submit the form to the Graduate School. If the course is a requirement for the student's program, the student must obtain the approval of the Program Director in addition to that of his or her academic advisor. Students wishing to register for a course outside the University System of Maryland (whether or not it is a course that is required for the student's program) must obtain the approval of the Program Director in addition to that of his or her academic advisor.

Please note that if a student has an outstanding balance with Student Accounts, he or she will not be able to register.

### **5.3. Course Grades**

A letter grading system is used for PREV courses, with grades assigned as whole letter grades only (A through F with no +/- grades). Course grades are based on the assessment by the instructor, as outlined in each course syllabus. Students must receive a grade of A (4.0 grade points) or B (3.0 grade points) in all courses required for their track, must receive a D (1.0 grade point) or higher in elective courses, and must maintain an overall GPA of 3.0 or higher.

### **5.4. Course Transfers**

No more than six course credits can be transferred towards the fulfillment of the MS or PhD degree requirements. Credit cannot be transferred for courses that were used to fulfill requirements for another degree, for correspondence courses, or for “credit by examination” courses taken at other universities. Only courses taken from an accredited institution, taken no more than five years before admission to the MS or PhD program, and in which the student received a grade of B or higher are eligible for transfer.

### **5.5. Course Waivers**

The MS and PhD programs are competency-based. Required and elective courses are designed to help the student meet these competencies. However, students may waive a course if they have already met the competency through an equivalent course or training.

Any course may be waived except for research credits required for completion of the degree. The number and type of courses that may be waived are considered on a case-by-case basis. Waiver requests are subject to review and approval by the program (but not by the Graduate School). In addition, any previously completed course proposed as equivalent to a specific EHG program course must have been taken at the graduate level, must have been completed by the student no more than five years prior to admission to the program, and must have resulted in a grade of B or higher.

For the PhD degree, waived courses do not need to be replaced with another course. For the MS degree, waived courses do not reduce the total number of credits needed to graduate. Therefore, the waived course must be replaced with an equal number of credits from other courses that are agreed upon by the student and academic advisor.

### **5.6. Transferring or Waiving a Class**

Prior to requesting a course transfer or waiver, the student should discuss the proposed course transfer or waiver with her/his academic advisor. The student and advisor should consider how the transfer or waiver, if granted, would affect the rest of the student’s education, including success on the comprehensive exam. While reducing the number of courses required to graduate can be beneficial, the student should consider whether transferring or waiving a course might increase the difficulty of higher level classes and whether important material could be missed that may, in the end, slow the student’s progress to completing the degree.

All requests to transfer or waive credits must be approved by the EHG Program Director. Program Director approval is obtained by sending an email message to the Program Director explaining the rationale for the request. The Program Director responds by email to approve or deny the request.

Requests to transfer credits for the MS degree must be approved by the Graduate School. To obtain approval, the student should submit a Transfer Credit Request form to the Graduate School ([http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/transfer\\_credits.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/transfer_credits.pdf)). Official transcripts of the courses for which transfer credit is requested must accompany the form.

Requests to transfer credits for the PhD degree do not need to be approved by the Graduate School. Requests to waive credits for the MS and PhD degrees do not need to be approved by the Graduate School.

If the request to transfer or waive credits involves the replacement of a specific course, the student should contact the course master for the course in question and explain the basis for requesting the transfer or waiver. A copy of the syllabus for the previous course or other materials demonstrating the student's relevant knowledge or training should be provided and used as the basis for describing equivalence between the EHG course and the previous course or training. If the course master agrees that the previous coursework or experience is equivalent to the EHG course in question, he/she approves the request by emailing the student, with copies to the Academic Coordinator, the student's Track Leader and academic advisor (if not the Track Leader), and the Program Director. Approval from the course master should be obtained before requesting the Program Director's approval.

Regardless of the type of request, copies of all forms and email correspondence must be provided to the Academic Coordinator so that the appropriate documentation can be retained in the student's file.

A summary of the procedures for transferring and waiving credits is shown below. Required procedures are marked with an "X".

	Transfer (to replace specific course)	Transfer (not to replace specific course)	Waive (to replace specific course)	Waive (not to replace specific course)
Approval of Program Director	X	X	X	X
Approval of course master	X		X	
Graduate School approval (MS only)	X	X		
Copies to Academic Coordinator	X	X	X	X

### 5.7. Independent Study

Independent study courses allow students to receive credit for an in-depth study of a topic that is beyond the scope of a regular course or that is devoted to an area not available in the regular curriculum. A single student or small group (no more than 4) works closely with a faculty member as a scholarly team. Although the students can work collaboratively, the faculty member must be the primary teaching resource. The expectation is an average of three hours of work per credit for each week of the semester, spent working independently or with the faculty member. Students may take a maximum of six credits of independent study courses. Students complete an independent study proposal form (with all participating students listed), which is approved by the faculty sponsor and Program Director. A copy of the approved proposal form must be sent to the Academic Coordinator at least two weeks prior to the start of the semester in which the course will take place. The form can be found on the program website (<http://lifesciences.umaryland.edu/epidemiology/Student-Resources/>).

### 5.8. Non-Degree Coursework

Non-degree status is for students who are not pursuing a degree but who are seeking to enhance their knowledge by completing one or more graduate courses. Should the student subsequently be admitted to the program, the credits earned as a non-degree student may be transferred, subject to approval by the Program Director. However, no more than six credits may be transferred to the degree.

### 5.9. Change in Course Registration

Students wishing to add, change or drop a class must obtain the Program Director's signature before submitting a Change in Registration Request form to the Graduate School ([http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/add\\_drop\\_change.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Enrollment-and-Registration/add_drop_change.pdf)). Policies regarding changes in course registration appear on the request form, in the Graduate Catalog (<http://www.graduate.umaryland.edu/policies/>) and in the Graduate School's academic calendar and deadlines (<http://www.graduate.umaryland.edu/Current-Students/Academic-Calendar-and-Deadlines/>). The student must provide copies of all registration-related paperwork to the Academic Coordinator.

### **5.10. Academic Misconduct**

Academic misconduct (whose definition includes but is not limited to fabrication, falsification, plagiarism, cheating, improprieties of authorship, and facilitating academic dishonesty) is not tolerated. Students who engage in such activities are subject to penalties as outlined on the Graduate School website (<http://www.graduate.umaryland.edu/Policies/>).

To avoid unintentional plagiarism, the program recommends that students analyze their Dissertation Proposal and dissertation drafts using a plagiarism detection software program before finalizing the document. This is a way to avoid unintentionally including text without the proper citations.

### **5.11. Appeals**

The Graduate School provides a mechanism for reviewing course grades alleged to be arbitrary or capricious. Students who receive a grade that they believe does not reflect performance in the course should review information available at <http://www.graduate.umaryland.edu/Policies/>. The Graduate School also provides a mechanism for appealing academic dismissal. Students who believe they have been unfairly dismissed should review information available at <http://www.graduate.umaryland.edu/Policies/>.

The Ombuds Committee was created by the Graduate School for the purpose of resolving disagreements between a graduate student and the graduate program with which he or she is involved. The EHG program encourages students to use the mediation services of the Ombuds Committee if they become involved in a dispute that cannot be successfully resolved at the program level. A step-by-step list of procedures for utilizing the Ombuds Committee can be found at <http://www.graduate.umaryland.edu/Policies/>.

### **5.12. Vacation and Sick Leave for Graduate Research Assistants**

Students should discuss with their mentor the time to be devoted to GRA activities, sick time, vacation time, etc. As stated in the Graduate Assistant Policies and Guidelines ([http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Financial-Support/GA\\_Guide2016-2017.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Financial-Support/GA_Guide2016-2017.pdf)), students are not eligible for vacation or sick leave. However, individual mentors have their own policies which may allow flexibility. The granting of these benefits is at the discretion of the mentor.

## **6. REQUIREMENTS**

### **6.1. Journal Club and Seminar Requirements**

Journal Clubs and departmental seminars provide valuable educational opportunities for students. All MS and PhD students are expected to attend seminars and Journal Clubs on a regular basis.

#### **6.1.1. Department of Epidemiology and Public Health Bi-Weekly Grand Rounds**

This series features speakers on a wide range of topics in the area of epidemiology and public health. Students in the Epidemiology and Molecular Epidemiology Tracks are expected to attend at least 60% of departmental seminars. Students should sign the attendance sheet as attendance is taken into consideration during the annual review of the student's progress.

#### **6.1.2. PPGM Seminar Series**

The Program for Personalized and Genomic Medicine sponsors this seminar series, which meets monthly and features an invited speaker. All Human Genetics PhD and MS students are expected to attend.

#### **6.1.3. Human Genetics Seminar**

All Human Genetics MS and PhD students are expected to participate in Human Genetics Seminar (HGEN 608) weekly every spring and fall semester, regardless of whether or not they are enrolled or presenting during that semester.

#### **6.1.4. Human Genetics Journal Club**

The Human Genetics Journal Club meets bi-weekly during the fall and spring semesters. All Human Genetics PhD and MS students are expected to attend, and most are asked to present.

#### **6.1.5. Department of Epidemiology and Public Health Journal Club**

The Department of Epidemiology and Public Health Journal Club meets weekly during fall and spring semesters on Mondays at noon. Articles are available through a dedicated site on Blackboard.

MS students are expected to present once per year and to attend at least 90% of Journal Club meetings. PhD students in their first two years of study are expected to present once per year and to attend at least 80% of Journal Club meetings. PhD students beyond their second year in the program are expected to mentor a new student through the preparation and presentation process and are encouraged, but not required, to attend. The list of student presenters and student mentors is emailed to students at the beginning of each semester.

### **6.2. Teaching Assistant Requirement**

Student teaching is required for PhD students in the Epidemiology and Molecular Epidemiology Tracks (regardless of funding source and regardless of full-time/part-time status) and is recommended for PhD students in the Human Genetics Track. Teaching assistants (TAs) are an essential component of the program's teaching mission. Being a TA gives students valuable teaching experience and reinforces their understanding of course material. Assisting faculty with teaching is a part of university citizenship, just as service on student thesis and dissertation committees is part of university citizenship for faculty members.

PhD students in the Epidemiology and Molecular Epidemiology Tracks should expect to spend an average of approximately five hours per week as a TA starting in the fall semester of the second year and continuing every semester (fall, spring, summer) until they graduate, although students will not necessarily be asked to serve as a TA every semester. If asked, students may agree to serve as a TA before the fall semester of the second year for a course that they have already taken or waived.

#### **6.2.1. TA Assignment Procedure**

1. Instructors who will teach courses in an upcoming semester send their request for TAs to the Academic Coordinator. Course instructors may specify a preference for a specific student TA although it may turn out to be impossible to assign the preferred student to that course.
2. The Academic Coordinator and Program Director match requests for TAs with available students, considering:
  - Instructor and student preferences
  - Student's expertise (having taken the course or waived it based on previous knowledge)
  - Number of times student has previously served as a TA
  - Other circumstances: Students who would like to be exempted from TA service for a given semester because of constraints related to research, travel, part-time status or other circumstances must inform the Academic Coordinator and Program Director at least six weeks before the beginning of the semester in question. Students who are granted an exemption for a given semester may be asked to take on additional TA duties in other semesters.
3. The list of all TA assignments is emailed to current students and instructors. The email message will include an excerpt from this handbook describing the obligations and conditions (including the average time commitment) that are expected of the TA and the course director.
4. Students or instructors who wish to request changes should contact the Academic Coordinator and Program Director immediately. Requests for changes will be honored to the degree possible.
5. At the end of the semester, the TA ([https://lifesciences.umaryland.edu/media/SOM/GPILS/PDFs/Epidemiology/TA\\_Completion\\_Student.docx](https://lifesciences.umaryland.edu/media/SOM/GPILS/PDFs/Epidemiology/TA_Completion_Student.docx)) and the instructor

([https://lifesciences.umaryland.edu/media/SOM/GPILS/PDFs/Epidemiology/TA\\_Completion\\_Student\\_Master.docx](https://lifesciences.umaryland.edu/media/SOM/GPILS/PDFs/Epidemiology/TA_Completion_Student_Master.docx)) both complete brief evaluation forms assessing the TA experience and submit the forms to the Academic Coordinator.

### **6.2.2. TA Responsibilities**

If students find that their duties as TAs are not helping them to develop their teaching skills, they should discuss possible changes in teaching duties with the course instructor. Duties should require no more than approximately five hours per week on average and may include, but are not limited to:

1. Grading homework, exams, quizzes and projects
2. Holding office hours or consultation sessions
3. Leading laboratory, discussion, recitation or review sessions
4. Guest lecturing
5. Planning activities including contacting guest speakers, organizing course materials, or developing assignments and review materials
6. Providing support for web-based courses

### **6.2.3. Course Instructor Responsibilities**

1. Course instructors are expected to ensure that TA activities do not take more than about five hours per week, on average, to perform.
2. Instructors are expected to provide the opportunity within the course for the TA to learn and apply university-level teaching skills, e.g., course planning and development, lecturing, course management.

## **6.3. Original Data Collection Requirement**

Because of the importance of understanding the validity of data in epidemiologic research, students in the Epidemiology and Molecular Epidemiology Tracks must, as a requirement for their degree, document that they have had experience with the collection of primary data.

Students should submit a detailed description of their past or proposed original data collection experience to the Academic Coordinator for review by the Track Leaders and Program Director. The form used to request approval of the data collection experience can be found at <http://lifesciences.umaryland.edu/epidemiology/Student-Resources/>. A broad range of experiences are eligible for approval as long as they fit the following general criteria:

- The experience involves the collection of laboratory data, epidemiologic data, or clinical research data.
- The experience is obtained as part of a research rotation or other research involvement, but not in a formal course or for academic credit.
- The nature and scope of the experience allows the student to appreciate the challenges involved in collecting primary data and to be sensitive to potential errors in secondary data sets.

## **7. DOCTORAL STUDENT FUNDING**

Students in the PhD program can receive financial support through several mechanisms, including graduate research assistantships awarded by GPILS, training grant funds, research grant funds, employer funding, or self-funding (part-time students only). International students may not qualify for all sources of funding.

GRA support includes tuition, stipend and health insurance and is available only for the student's first three semesters. By January 1 of the student's second year in the program, students with GPILS support must transition to another source of funding and the research mentor or a training grant takes over funding of the GRA (tuition, stipend and health insurance). Students who have completed the GPILS Summer Bridge Program and whose funding begins in the July preceding their first year must transition to research mentor or training grant funding by November 1 of their second year in the program.

Rotation and dissertation mentors may assign up to 20 hours per week of work that is not related to the student's progression toward a degree. All of the student's remaining time (except that devoted to coursework and teaching assistantships) must be devoted to the student's own research. For further information, go to <http://www.graduate.umaryland.edu/Costs-and-Aid/Graduate-Assistantships/>.

To ensure clear communication about expectations, students should share the Mentor Support Information Sheet with any faculty member who is a potential dissertation mentor. The information sheet is available from the Academic Coordinator or Program Director and will eventually be available on the program website.

### **7.1. Tuition Remission and Payment by Grant Forms**

During the first 16 months, GRAs are responsible for completing and submitting tuition remission forms (<http://www.umaryland.edu/hrs/benefits/educational-benefits/tuition-remission/faculty-and-staff/>) to the Graduate School each fall and spring semester. Copies of the completed forms must be submitted to the Academic Coordinator at least six weeks before the start of the semester. Late forms result in account holds and registration problems. Note that tuition remission covers no more than 10 credits per semester (fall and spring semesters only).

Once a student is being funded by a mentor, the student must have the mentor's administrator complete the tuition remission form with an account code in box 17, and then have the mentor or the mentor's administrator sign the form. This must be done each fall and spring semester. Completed forms must be submitted in person to Human Resources Services (620 W. Lexington St., 3<sup>rd</sup> floor) at least six weeks before the start of the semester for which tuition remission is requested. In addition, a Tuition/Fees/Insurance Payment by Grant Funds Form (<http://www.umaryland.edu/media/umb/af/fs/forms/Tuition-Payment-PS.pdf>) must be completed in order for the student to receive health insurance coverage. Please note that students must register for classes to generate a bill before completing the Payment by Grant Form because the form requires information on the cost of insurance which appears on the student's bill. These forms must be completed and submitted to the Student Accounting office (601 W. Lombard St. in the Health Sciences and Human Services Library) at least six weeks before the start of the semester. Copies of both forms should be submitted to the Academic Coordinator. Students supported by a training grant should contact the administrator of the training grant, as some procedures may be different.

Graduate research assistants must register as full-time students to remain eligible for stipend, tuition remission, and health insurance benefits each semester that they hold an assistantship. All students who receive a GRA must also register for seven credits of ABGA 900 in each of the fall, spring and summer semesters. These credits do not count against the 10 credits per semester for which tuition will be remitted. Tuition for the summer semester is not covered according to the Graduate School's policy. All other fees and auxiliary benefits (e.g., dental and vision insurance) are the responsibility of the graduate student, although some mentors may choose to cover the cost of these fees and benefits.

## **8. COURSEWORK**

A summary of the required courses for the PhD in Epidemiology and Human Genetics, the MS in Epidemiology and Clinical Research, and the MS in Human Genetics is provided in Tables 1 and 2. Table 3 shows typical sequences for required courses. Course descriptions are available in the Graduate Catalog on the Graduate School website (<http://www.graduate.umaryland.edu/policies/>).

**Table 1. Course Requirements for the MS in Epidemiology and Clinical Research and the PhD in Epidemiology and Human Genetics (Epidemiology and Molecular Epidemiology Tracks)**

Course Number and Name	Semester Offered	Credits	MS in Epidemiology and Clinical Research		PhD in Epidemiology and Human Genetics	
			Epidemiology Track	Clinical Research Track	Epidemiology Track	Molecular Epidemiology Track
PREV 600 Principles of Epidemiology	Fall	3	✓	✓	✓	✓
PREV 616 Introduction to Clinical and Translational Research at UMB*	Summer	2		✓		
PREV 619 Introduction to SAS	Fall	1	✓	✓	✓	✓
PREV 620 Principles of Biostatistics	Fall	3	✓	✓	✓	✓
PREV 633 Legal and Regulatory Issues in Clinical Research	Fall	2		✓		
PREV 648 Health Services Policy, Management, and Finance	Summer, Fall	3	✓			
PREV 659 Observational Studies in Epidemiology	Spring	3	✓		✓	✓
PREV 668 Environmental and Occupational Health	Fall	3	✓			
PREV 710 Clinical Research Project Design and Implementation	Spring	2		✓		
PREV 711 Genetic Epidemiology	Spring	3				✓
PREV 716 Chronic Disease Epidemiology	Summer	3			✓	
GPLS 716 Genomics and Bioinformatics	Spring	3				✓
PREV 720 Statistical Methods in Epidemiology	Spring	3	✓	✓	✓	✓
PREV 721 Regression Analysis ( <i>half-semester course</i> )	Fall	2			✓**	✓
PREV 723 Survival Analysis ( <i>half-semester course</i> )	Fall	2			✓**	✓
PREV 747 Research Practicum I	Spring	3	✓***	✓***	✓	✓
PREV 748 Research Practicum II	Summer	2	✓***	✓***	✓	✓
PREV 749 Infectious Disease Epidemiology: A Global Perspective	Fall	3			✓	
PREV 758 Health Survey Research Methods	Fall	3			✓	
PREV 780 Molecular Epidemiology	Fall	3				✓
PREV 801 Longitudinal Data Analysis	Spring	3			✓**	
PREV 802 Statistics for Molecular Biology ( <i>half-semester course</i> )	Spring	2			✓**	✓
PREV 803 Clinical Trials and Experimental Epidemiology	Spring	3			✓	
CIPP 907 Research Ethics (or equivalent) (Students must attend, but registration through SURFS is not required.)	Fall	0	✓		✓	✓
CIPP 907 Research Ethics or CIPP 909 Responsible Conduct of Research		1-2		✓		
MINIMUM NUMBER OF ELECTIVE CREDITS			Variable	Variable	8	11
DISSERTATION RESEARCH CREDITS (PhD) (PREV 899)			-	-	12 (minimum)	12 (minimum)
THESIS RESEARCH CREDITS (MS – thesis option) (PREV 799)			6 (minimum)	6 (minimum)	-	-
THESIS RESEARCH CREDITS (MS – non-thesis option)			0	0	-	-
TOTAL CREDITS REQUIRED FOR DEGREE			30	30	Variable	Variable

## Table 1 (continued)

✓ Required course

\* PREV 616 is an annual week-long course that meets from 9 am to 4 pm, usually during the first week in August.

\*\* Students must select three of the four courses marked with an asterisk.

\*\*\* Students in the MS in Epidemiology and Clinical Research (both tracks) may complete Research Practicum I and II (non-thesis option) or they may complete a Master's thesis and register for at least six thesis research credits (PREV 799) (thesis option).

### Notes:

- Students should check course syllabi for possible prerequisites.
- Some courses (including PREV 711, PREV 780, and PREV 802) may not be offered every year. Students and advisors should check with the Academic Coordinator for each semester's course offerings.

**Table 2. Course Requirements for the MS in Human Genetics and the PhD in Epidemiology and Human Genetics (Human Genetics Track)**

Course Number and Name	Semester Offered	Credits	MS in Human Genetics	PhD in Epidemiology and Human Genetics (Human Genetics Track)
HGEN 601 Basic Human Genetics I	Fall	4	✓	✓
HGEN 602 Basic Human Genetics II	Spring	4	✓	✓
HGEN 608 Human Genetics Seminar	Fall and Spring	1	✓*	✓*
GPLS 716 Genomics and Bioinformatics	Spring	3	✓	✓
GPLS 601 Mechanisms in Biomedical Sciences	Fall	8		✓
PREV 619 Introduction to SAS and PREV 620 Principles of Biostatistics	Fall	4	✓**	✓**
PREV 621 Biostatistical Methods	Fall	3	✓**	✓**
PREV 600 Principles of Epidemiology	Fall	3	✓***	✓***
HGEN 701 Human Cytogenetics	Spring	2	✓***	✓***
PREV 711 Genetic Epidemiology	Spring	3	✓***	✓***
GPLS 717 Molecular Genetics and Development in Model Organisms	Fall	2	✓***	✓***
GPLS 718 Programming for Bioinformatics	Spring	2	✓***	✓***
HGEN 720 Genetics and Metabolism	Fall	2	✓***	✓***
HGEN 728 Clinical Genetics I	Fall	2	✓***	✓***
HGEN 731 Clinical Genetics II	Spring	2	✓***	✓***
HGEN 750 Topics in Molecular Medicine	Fall	2	✓***	✓***
HGEN 760 Clinical Cancer Genetics	Spring	2	✓***	✓***
PREV 780 Molecular Epidemiology	Fall	3	✓***	✓***
CIPP 907 Research Ethics (or equivalent) (Students must attend, but registration through SURFS is not required.)	Fall	0	✓	✓
ELECTIVE CREDITS****			Variable	Variable
MINIMUM NUMBER OF RESEARCH CREDITS			6	12
TOTAL CREDITS REQUIRED FOR DEGREE			30	Variable

✓ Required course

\* Students taking the MS in Human Genetics must attend HGEN 608 every fall and spring semester but they do not register for credit in the fall semester of Year 1 or the spring semester of Year 2. They must present once during each of the semesters for which they register for credit. PhD students in the Human Genetics Track must attend HGEN 608 every fall and spring semester, do not register for credit in the fall semester of Year 1, and must register for credit for at least four semesters beginning in the spring semester of Year 2. They must present once during each of the semesters for which they register for credit.

\*\* Students must select either PREV 619 and PREV 620, or PREV 621. Students should consult their academic advisor for guidance about course selection.

\*\*\* Students must select two or more of the courses marked with a triple asterisk.

\*\*\*\* The number of elective credits depends on which courses are selected from among those marked with a triple asterisk.

Notes:

- Students should check course syllabi for possible prerequisites.
- Some courses (including HGEN 701, PREV 711, HGEN 720 and PREV 780) may not be offered every year. Students and advisors should check with the Academic Coordinator for each semester's course offerings.

**Table 3. Typical Sequence of Required Courses**

Track	Fall, Year 1	Spring, Year 1	Summer, Year 1*	Fall, Year 2	Spring Year 2	Summer Year 2*
PhD (Epidemiology Track)	PREV 600 PREV 619 PREV 620 PREV 749	PREV 659 PREV 720 PREV 747	PREV 716 PREV 748	PREV 721 and/or PREV 723 PREV 758	PREV 801 and/or PREV 802 PREV 803	
PhD (Molecular Epidemiology Track)	PREV 600 PREV 619 PREV 620 PREV 780	PREV 659 PREV 720 PREV 747	PREV 748	PREV 721 PREV 723	PREV 711 GPLS 716 PREV 802	
PhD (Human Genetics Track)**	GPLS 601 HGEN 608***	HGEN 602 HGEN 608*** GPLS 716		HGEN 601 HGEN 608*** PREV 620 and PREV 619, or PREV 621	HGEN 608***	
MS (Epidemiology Track)	PREV 600 PREV 619 PREV 620 PREV 648	PREV 659 PREV 720 PREV 747****	PREV 748****	PREV 668		
MS (Clinical Research Track)	PREV 600 PREV 616 PREV 633	PREV 710 CIPP 909		PREV 619 PREV 620	PREV 720 PREV 747****	PREV 748****
MS in Human Genetics**	HGEN 601 HGEN 608*** PREV 620 and PREV 619, or PREV 621	HGEN 602 HGEN 608*** GPLS 716		HGEN 608***	HGEN 608***	

\* PhD students supported by a graduate research assistantship should contact the Academic Coordinator for instructions on summer registration.

\*\* PhD students in the Human Genetics Track and students taking the MS in Human Genetics must take at least two other courses from among 11 marked with a triple asterisk in Table 2.

\*\*\* Students taking the MS in Human Genetics must attend HGEN 608 every fall and spring semester but they do not register for credit in the fall semester of Year 1 or the spring semester of Year 2. They must present once during each of the semesters for which they register for credit. PhD students in the Human Genetics Track must attend HGEN 608 every fall and spring semester, do not register for credit in the fall semester of Year 1, and must register for credit for at least four semesters beginning in the spring semester of Year 2. They must present once during each of the semesters for which they register for credit.

\*\*\*\* Students taking the MS in Epidemiology and Clinical Research (both tracks) take PREV 747 and PREV 748 only if they have selected the non-thesis option.

Notes:

- This table shows typical sequences. Students should customize the sequence in light of their own situation (e.g., courses transferred or waived).
- In addition to required courses, students may be required to take elective courses and to register for research credits.
- Students in all degree programs must take at least one ethics course. See Tables 1 and 2 for details.
- Some courses may not be offered every year. Students should check with the Academic Coordinator for each semester's course offerings.

## 9. THE PHD DEGREE

### 9.1. Curriculum

Students in the PhD program must take certain number of required courses, a minimum number of elective credits, and a minimum number of dissertation credits. However, there is no specific requirement regarding the total number of credits.

It is expected that most of the coursework will be completed during the first two years of the program. In addition to coursework, students will also complete their research rotations during the first 16 months of the program. Note that the 16-month period starts with the beginning of the Summer Bridge Program, if applicable.

Students should use the information in Tables 1-3 to plan their course sequence. New students and advisors are encouraged to develop a grid showing all semesters of the student's first two years in the program and to fill in which required and elective courses will be taken in each semester.

Note that students are required to have registered for 12 dissertation research credits (PREV 899) by the time they graduate. Students should estimate their graduation date and register for the appropriate number of dissertation research credits per semester to make sure that they have at least 12 credits before graduation.

### 9.2. PhD Milestones and Timeline

A summary of milestones (other than course requirements) that must be completed by PhD students is in Table 4.

**Table 4. Non-Course Degree Requirements for the PhD in Epidemiology and Human Genetics**

Requirement	Approval	Epidemiology Track	Molecular Epidemiology Track	Human Genetics Track
Rotations	Student's Track Leader	✓	✓	✓
Teaching assistantships	Program Director	✓	✓	(✓)
Comprehensive Examination	Comprehensive Examination Committee	✓	✓	✓
Research Abstract	Track Leaders	✓	✓	✓
General Research Plan	Graduate Program Committee	✓	✓	✓
Dissertation Proposal Defense	Student's dissertation committee	✓	✓	✓
Dissertation Defense	Student's dissertation committee	✓	✓	✓
Primary data collection experience	Track Leaders	✓	✓	

✓=required

(✓) =recommended

In order to complete the program within five years of admission, the program in EHG recommends the timeline shown in Table 5.

**Table 5. Recommended Progression Towards PhD Degree**

	Year 1	Year 2	Year 3	Year 4	Year 5
Coursework	█				
Teaching assistantships		█			
Rotations	█				
Identify research mentor	█				
GPILS funding	█				
Non-GPILS* funding		█			
Comprehensive exam		**	**		
Research Abstract		█			
General Research Plan			█		
Dissertation Proposal			█		
Dissertation Proposal Defense				█	
Dissertation				█	
Dissertation Defense					█

\* Support by mentor’s research grant, student’s own predoctoral research grant, or training grant

\*\*Comprehensive examinations are August end of 1<sup>st</sup> year for epidemiology and molecular epidemiology track students, January of 2<sup>nd</sup> year for human genetic track students.

According to Graduate School requirements, all PhD students (including part-time students) must be admitted to candidacy within five academic years of the first term of enrollment in the program and at least two full sequential semesters (spring, summer, or fall) before graduation. All degree requirements, including the Dissertation Defense, must be completed within four years of admission to candidacy and no more than nine years after enrollment in the doctoral program. These deadlines are summarized in Table 6.

**Table 6. Graduate School Deadlines**

Interval	Maximum
From first term of enrollment to admission to candidacy (approval of General Research Plan)	5 years
From admission to candidacy to Dissertation Defense	4 years
Total	9 years

### 9.3. Comprehensive Examination

The purpose of the Comprehensive Exam is to determine whether students are prepared to begin their independent dissertation research. On this exam, students must demonstrate mastery of the fundamental principles and skills of their respective disciplines. In addition, they must demonstrate their ability to apply scientific reasoning to critique existing research and to apply background knowledge to develop and implement solutions to new research problems. Although part-time students are not

required to take the Comprehensive Examination at the same time as full-time students, the deadlines for admission to candidacy and for graduation are the same as for all other PhD students.

For the **Epidemiology and Molecular Epidemiology Tracks**, students are required to take the comprehensive exam at the end of their first year (or after they have taken PREV 620, PREV619, PREV 600, PREV 720, PREV659, PREV747, PREV748). The Program Director appoints an examination committee to administer the exam. The exam is held in August before the start of the fall semester. During the spring semester preceding the examination, students are informed about the dates of the examination. The Comprehensive Examination has five-parts and includes closed-book questions (two parts: epidemiology and biostatistics), open-book questions (two parts: article critique and study design), and data analysis. In order to pass, a student needs to pass all 5 parts. If a student fails 3 or more of the 5 parts, they will be considered to have failed the examination. If a student passes at least 3 parts, they will be eligible to retake the parts that they failed. Retakes will take place in November following the August examination. Those who are asked to retake will be provided with feedback and guidance regarding how to prepare. A final decision on passing or not will be made for each student by the end of the fall semester. Students will receive examination results individually via their University of Maryland, Baltimore (UMB) email accounts. If the student fails the final examination or remediation, he or she must leave the PhD program. A student may appeal the head of the comprehensive examination committee to retake the entire examination again the following August, but will only be allowed to do this once and the program will not be responsible for providing GRA funding in the Spring and Summer before the appealed retake.

Note, for Epidemiology and Molecular Epidemiology track students who are taking examinations in January 2018: the examination will be held in January 2018 for those scheduled to take the examination for either the first or second time. The 5-part format and grading criteria outlined above will be in effect. Those who fail this examination for the first time can retake the examination in August 2018. Those who fail for the second time will be considered to have failed the comprehensive examination with no option for retake and will be required to leave the program.

For the **Human Genetics Track** students, the comprehensive examination is taken after students have completed their third semester of full-time coursework. The track leader appoints the examination committee. During the fall semester preceding the examination, students are informed about the dates of the examination which is usually held in January or early February. The format of the Comprehensive Examination includes an in-class written exam, a take-home written exam due one week after the in-class written exam, and an oral exam two weeks after the in-class written exam. There are three possible outcomes: Pass, fail with option to remediate or retake the exam the following January, or fail. Students will receive exam results individually via their University of Maryland, Baltimore (UMB) email accounts. If the student fails the final examination or remediation, he or she must leave the PhD program.

#### **9.4. Research Rotations**

Research rotations provide students with opportunities to 1) learn how to function and flourish in a research setting; 2) identify an area of research for their dissertation work; 3) identify a source of funding for their dissertation work; and 4) learn a specific skill (e.g., laboratory technique, statistical method) necessary for their dissertation work or future career. During rotations, students work on projects that are mutually beneficial to mentor and student and which help both decide if the situation is a good fit for the student's dissertation project. Students and mentors should agree on expectations before beginning the rotation and should maintain regular communication throughout the rotation period.

All full-time PhD students (regardless of track or source of funding) perform research rotations during the first 16 months of their program. Note that the 16-month period starts with the beginning of the Summer Bridge Program, if applicable.

Students in the Human Genetics Track complete three rotations, beginning upon completion of Mechanisms in Biomedical Sciences (Core Course). Students who have previously completed a rotation as part of the GPILS Summer Bridge Program complete two additional rotations after completing the Core Course. Each rotation is 8-12 weeks in length, with duration and weekly schedule negotiated with the rotation mentor. If the third rotation is completed before the end of the first 16 months, the student spends the rest of the time working with the dissertation mentor.

For students in the Epidemiology and Molecular Epidemiology Tracks, there are three five-month rotations: September 1 to January 31, February 1 to June 30 and July 1 to November 30 of the student's first 16 months in the program. In some cases, students may obtain permission to begin their rotations earlier (e.g., during the summer before their first semester). The selection of the first rotation is made during the summer preceding the student's first year in the program, in consultation with the student's Track Leader. The selection of the second rotation is made during the last two months of the first rotation. Ideally, the third rotation is with the mentor identified for dissertation research. However, the student may, with the agreement of the research mentor, work with another faculty member for the third rotation to obtain a specific set of skills.

Rotations are selected by the student in collaboration with the Track Leader or Program Director. Selection is based on individual student needs. Thus, students who have already identified their area of interest are encouraged to arrange rotations with one or more mentors in the identified research area who expect to have research or training grant funds and are willing to support a student's future dissertation work. Students who do not yet have a preferred research area are encouraged to identify rotations with one or more mentors who work in fields of potential interest and who expect to have research or training grant funds and would be willing to support a student's future dissertation work. Students should explicitly ask the potential rotation mentor if there is a possibility of funding for their dissertation before they start a rotation. Students should meet weekly with their rotation mentors.

Once a rotation has been selected, the student, in collaboration with the rotation mentor, completes a Research Rotation Proposal Form (<http://lifesciences.umaryland.edu/epidemiology/Student-Resources/>) outlining the goals of the rotation. The form is reviewed, signed by the student's Track Leader, and submitted to the Academic Coordinator. (Electronic signatures are sufficient as long as confirmation emails are sent to the Academic Coordinator.) At the end of each rotation, the student and mentor each submit to the Track Leader a Research Rotation Evaluation Form (<http://lifesciences.umaryland.edu/epidemiology/Student-Resources/>) in which they assess the extent to which the goals were attained. The Academic Coordinator must also receive a copy of the completed Research Rotation Evaluation Form.

Modifications regarding the number of required rotations may be approved by the student's track leader on a case-by-case basis.

### **9.5. Identifying a Research Mentor**

Students are expected to identify a research mentor by the fall of Year 2, with the mentor agreeing to provide funding for the student starting in January of Year 2 (or November of Year 2 for students who completed the GPILS Summer Bridge Program). Rotations are a valuable way to help students identify a mentor who will supervise their dissertation research and provide funding once the initial GRA funding expires. Students should work closely with their Track Leaders for advice about identifying a mentor. Fellow students can also provide valuable information based on their own experience.

### **9.6. Research Abstract and Committee Selection**

After passing the Comprehensive Examination, the student, with approval from the research mentor, must provide a brief Research Abstract and propose a dissertation committee. The EHG program recommends that this milestone be reached within six months of passing the Comprehensive Examination. The goal of the Research Abstract is to identify potential problems and increase the likelihood that the student will be successful at the stage of General Research Plan submission. The

Track Leaders review the Research Abstract, which should briefly describe 1) the purpose of the research, 2) background, significance, and innovation, 3) study design and source of data, and 4) the student's role. In preparing the Research Abstract, the student should be careful not to use the plural pronoun ("we") when referring to independent work that will be done by the student. The student should also clearly distinguish between work that will be done by the student as part of the dissertation versus work done by the research mentor or other members of the research team. The Research Abstract should not exceed one page (exclusive of the bibliography and description of the dissertation committee).

Dissertation committee membership must meet requirements of the Graduate School. The dissertation committee must have between five and seven members, including the chair, and all members must hold a doctoral-level degree. The chair of the committee and two additional members must be Regular Members of the Graduate Faculty. The list of Graduate Faculty members, and procedures to apply for Regular Graduate Faculty membership are available at this link: <http://www.graduate.umaryland.edu/About/Faculty-and-Staff/Graduate-Faculty/>. The student should indicate the Graduate Faculty status (Regular, Associate or none) of each member of the proposed dissertation committee. At least one committee member must be from outside the student's program or department. If the chair of the committee is from outside the EHG program, the committee must include a co-chair from within the program.

For Epidemiology and Molecular Epidemiology Track students, at least one member must be a biostatistician and at least one member should have expertise in epidemiologic methods. For students in the Human Genetics Track, at least one member of the committee should be a member of the Human Genetics teaching faculty. A member with biostatistical expertise may be required depending on the research area. Students in this track should consult the Track Leader for guidance, if necessary.

The dissertation committee chair and two other members of the committee should be designated as readers. Two weeks before the Dissertation Defense, the readers must certify that the Doctoral Dissertation is complete and ready to be defended, as described more fully later.

The Research Abstract and proposed committee membership should be submitted to the Academic Coordinator by email. The Program Director and Track Leaders review the appropriateness of the proposed dissertation committee membership and the overall research area. The results of the evaluation are provided to the student by email.

If the student makes substantial changes to his or her research plan or dissertation committee after the Research Abstract has been approved, a revised Research Abstract must be submitted for approval.

### **9.7. General Research Plan**

Within 12 months of passing the Comprehensive Examination, the student should submit a General Research Plan (GRP). The purpose of the GRP is to assure that the proposed project appears feasible and that the scope and originality of the proposed work is sufficient for a doctoral dissertation. The Graduate Program Committee (GPC) reviews the GRP to determine whether the student should pursue development of the proposed research or should re-evaluate the area of interest.

While working on the GRP, it is expected that the student will meet with the research mentor and other committee members on a regular basis. Consultations with individual committee members should be planned as needed, depending on the faculty member's specific expertise and the phase of project development and execution. The full committee is expected to meet at least twice a year, to assure optimal communication and to prevent last-minute problems. The student or the dissertation committee chair should inform the Program Director or Track Leader if there is difficulty scheduling meetings due to the lack of availability of committee members. Students should allow sufficient time for the appropriate discussions and approvals to occur, and should make a point of scheduling meetings well in advance.

The GRP must be submitted to the Academic Coordinator at least two weeks prior to the GPC meeting during which it will be reviewed. The document must be no longer than 10 pages and it must include the names of all the proposed dissertation committee members along with their Graduate Faculty status (Regular, Associate or none). All members of the student's committee must send an email message to the Academic Coordinator (no more than two weeks prior to the GPC meeting), indicating their approval of the GRP and willingness to serve on the committee. GPC meetings are held on a monthly basis. Students should contact the Academic Coordinator for specific dates. No more than three GRPs can be reviewed at a given GPC meeting. The GRPs are scheduled in the order in which they are received.

The student and his or her research mentor attend the GPC meeting. The student gives a brief oral presentation (approximately five minutes). The presentation is informal and should not involve slides or handouts. This is followed by a brief question period. The student may be asked to leave the room for a brief discussion between the GPC and the research mentor. After the student and mentor have left the meeting, the GPC deliberates and makes a decision about whether to approve the GRP. The Academic Coordinator transmits the decision to the student by email, with a copy to all members of the student's dissertation committee.

If the chair or co-chair of the student's proposed dissertation committee is on the GPC, he or she does not participate in the discussion or decision about the student's GRP. If other members of the student's proposed dissertation committee are on the GPC, they may participate in the discussion but may not vote.

If the student is asked to resubmit the GRP, the student and research mentor again attend the GPC meeting to present the revision. If the student makes substantial changes to his or her research plan or dissertation committee after the GRP has been approved, a revised GRP must be submitted for approval.

#### **9.7.1. GRP Evaluation Criteria**

The GPC evaluates the GRP according to the following criteria:

- **Significance:** Does the proposed study address an important health problem?
- **Originality:** Is the proposed study original? Does it fill a gap in knowledge? Is the student's proposed work distinct from that of the rest of the research group with which the student is working?
- **Methods:** Are the proposed methods fundamentally valid? Are they feasible?
- **Scope:** Is the amount and complexity of the proposed work appropriate for doctoral level scholarship?
- **Student's role:** Will the student play a primary role in the conception and execution of the study?
- **Feasibility:** Is the proposed work feasible within a reasonable time frame?
- **Committee:** Does the student's committee include the appropriate expertise and does it meet Graduate School requirements?

#### **9.7.2. GRP Format and Elements**

The GRP should be single-spaced, using Arial 11 point or Times New Roman 12 point font, with all margins at least 0.5", and with no condensed character or line spacing.

##### **Specific Aims** (*approximately 1 page*)

- Present the study aims and hypotheses.

##### **Background and Significance** (*approximately 1 page*)

- Give a brief summary of the existing literature on the study topic. The text should not include a detailed literature review describing all relevant studies and their findings. Rather, it should

summarize what is known and what is not known about the topic, how the proposed study will fill a gap in existing knowledge, and the significance and originality of the proposed project.

- Students are not required to have done preliminary studies or to have collected pilot data for their dissertation project. If the student has done preliminary studies, the student can include those in the summary of background literature but should not include a detailed description of methods and results of the preliminary studies.
- If the student's preliminary studies shed light on the feasibility, methods, or sample size of the proposed project, the student does not need to describe those results in the Background and Significance section. Those preliminary results should be referred to in the sections where they are relevant (e.g., feasibility, methods, and/or sample size).

### **Methods** (*approximately 6 pages*)

- Study design: State which study design is being proposed.
- Participants/materials: Present eligibility criteria if applicable and describe how study participants or materials (e.g., animal models, cell lines, assays, reagents) will be selected.
- Measures: Define the assays, experiments, outcome variable(s), predictor variable(s), confounders, and/or effect modifiers, as appropriate. Briefly describe study measures conceptually. Do not give lengthy descriptions of laboratory methods or questionnaires.
- Sample size and power: Provide calculations to justify the proposed sample size. Be sure to discuss the magnitude of the effect that can be detected and the clinical or biologic significance of that effect.
- Analysis: Briefly describe analytic methods. The student should provide enough information to demonstrate that he or she understands how to use the proposed statistical methods to address the study hypotheses.
- Strengths: Briefly describe the study's strengths.
- Limitations: Briefly describe the study's limitations. Discuss the major sources of information bias, selection bias and other potential sources of error and how they will be handled. Also discuss the role of confounding in evaluating the study hypotheses and how confounding will be handled.
- Students who propose to use existing data still need to thoroughly discuss all the points listed above.

### **Student's Role** (*approximately 0.5 pages*)

- Describe the student's role in the development of the research questions and hypotheses, collection and/or analysis of the data, performance of any experiments or assays, and dissemination of results.

### **Feasibility** (*approximately 1 page*)

- Timeline: Provide a detailed timeline.
- Sample recruitment: Show clearly that it is feasible to accrue the required number of participants or perform the required experiments or assays within the proposed time period.
- External factors: Outline factors over which the student has little or no control (e.g., parent study recruitment rates, obtaining regulatory approvals or data access) that could impact the student's ability to complete the project as planned.

### **Committee** (*approximately 0.5 pages*)

- Discuss the unique expertise of each member and how each will contribute to the work. Indicate the Graduate Faculty membership status (Regular, Associate, or none) of each committee member.

### **References** (*as needed*)

In preparing the GRP, the student should be careful not to use the plural pronoun (“we”) when referring to independent work that will be done by the student.

### **9.8. Admission to Candidacy**

PhD students must be admitted to candidacy within five years of the first term of enrollment in the doctoral program and at least two full sequential semesters (spring, summer, or fall) before graduation.

Once the GRP has been approved, the student is eligible to apply for PhD candidacy. The application can be found on the Graduate School website (<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Academic-Progress/candidacy-2012.pdf>). Students supported by graduate research assistantships become eligible for the Level II stipend when they achieve candidacy.

The Application for Admission to PhD Candidacy form must be submitted by email to Erin Golembewski, Senior Associate Dean of the Graduate School ([egole001@umaryland.edu](mailto:egole001@umaryland.edu)). Students will receive an approval letter from Dr. Golembewski, which they must provide to the GPILS Budget Analyst, Foyeke Daramola ([fdaramola@som.umaryland.edu](mailto:fdaramola@som.umaryland.edu)), in order to receive their stipend increase. The student must provide a copy of the Application for Admission to PhD Candidacy form and the approval letter from the Graduate School to the Academic Coordinator.

If the GRP is approved mid-semester and the student is enrolled in PREV 898, the student can have those credits converted to PREV 899 credits by contacting the Graduate School ([gradinfo@umaryland.edu](mailto:gradinfo@umaryland.edu)).

### **9.9. Dissertation Proposal**

After approval of the GRP, the student writes the Dissertation Proposal with the guidance of his or her dissertation committee. The Dissertation Proposal is intended to convey essential information about the student's doctoral dissertation research. It should succinctly identify the problem to be addressed, review relevant background, state the significance of the problem, and describe the methods to be used in carrying out the project. The proposal is an important document outlining the student's dissertation research, and its acceptance implies that the dissertation committee and student agree on the plan of study.

While working on the Dissertation Proposal, it is expected that the student will meet with the research mentor and other committee members on a regular basis. Consultations with individual committee members should be planned as needed, depending on the faculty member's specific expertise and the phase of project development and execution. The full committee is expected to meet at least twice a year, to assure optimal communication and to prevent last-minute problems. The student or the dissertation committee chair should inform the Program Director or Track Leader if there is difficulty scheduling meetings due to the lack of availability of committee members. Students should allow sufficient time for the appropriate discussions and approvals to occur, and should make a point of scheduling meetings well in advance.

The structure and content of the Dissertation Proposal are similar to the structure and content of the GRP but the information provided should be more detailed. The goal is to provide a roadmap for the proposed research as one would in a research grant application. There is no specific page limit but the recommended length is roughly 20-25 pages (exclusive of references) as outlined below.

Specific aims (including hypotheses) (*approximately 1 page*)

Background and significance (*approximately 6 pages*)

Innovation (*approximately 0.5 page*)

Preliminary data (optional)

Methods (including potential problems and proposed solutions) (*approximately 12 pages*)

Anticipated results and contribution to knowledge (*approximately 0.5 page*)

Feasibility and timeline (*approximately 1 page*)

Student's role (*approximately 0.5 page*)  
Dissertation committee (*approximately 0.5 page*)  
References (*as needed*)

In preparing the Dissertation Proposal, the student should be careful not to use the plural pronoun ("we") when referring to independent work that will be done by the student.

### **9.9.1. Dissertation Proposal Defense**

When the dissertation committee agrees that the Research Proposal is complete, the student arranges to conduct the Dissertation Proposal Defense. The student should inform the Academic Coordinator as soon as he or she has identified a date for the defense so that a room can be reserved and announcements distributed. It is recommended that the proposal defense take place no later than six months after attaining PhD candidacy status.

At least four weeks prior to the Dissertation Proposal Defense, the student should provide copies of the Research Proposal to all members of the dissertation committee for review. At least two weeks prior to the defense, all committee members must sign the Dissertation Proposal Form (<http://lifesciences.umaryland.edu/epidemiology/Student-Resources/>) to indicate that they have read and approve the Dissertation Proposal and that the student is ready to proceed to the Proposal Defense. (Electronic signatures are sufficient as long as a confirmatory email message is sent to the Academic Coordinator.) The student will provide the Academic Coordinator with a signed copy of the Dissertation Proposal form. The Academic Coordinator will reserve a room for the defense and distribute announcements to faculty and students.

The purpose of the defense is to evaluate the quality of the Dissertation Proposal and to provide constructive criticism for the proposed dissertation work. The Dissertation Proposal Defense consists of a public oral presentation and a closed session. All members of the student's dissertation committee must attend both the open and closed sessions. All program faculty and graduate students may attend the open session and all attendees except the student's dissertation committee members may ask questions during this session. The dissertation committee questions the student during the closed session. Members of the Graduate Faculty who are not on the student's dissertation committee may attend the closed session as observers but may not participate verbally or otherwise in the proceedings.

At least one member of the GPC must attend the Proposal Defense. Therefore, the student should identify a GPC member and include that faculty member in the scheduling process. The designated GPC member should make a brief announcement about the procedures and format of the defense before the start of the open session and should ensure that proper procedures are followed.

The Dissertation Proposal Defense is administered and graded by the student's dissertation committee. The possible outcomes are pass or fail. If the outcome is "pass", the dissertation committee may require minor or major revisions. If the outcome is "fail", the student may be allowed to repeat the defense.

The student is responsible for providing the dissertation committee with a copy of the Dissertation Proposal Defense Form (<http://lifesciences.umaryland.edu/epidemiology/Student-Resources/>) on which the committee indicates the outcome of the defense. The dissertation committee will advise the student of any changes that must be made before the student can proceed to work on the Doctoral Dissertation. This form should be returned to the Academic Coordinator within two days of the defense.

### **9.10. Doctoral Dissertation**

The Doctoral Dissertation is an original, scholarly research project that demonstrates that the student has mastered a field of knowledge, has successfully completed a program of independent research in a chosen field, and is able to publicly discuss and defend the research.

While working on the dissertation, it is expected that the student will meet with the research mentor and other committee members on a regular basis. Consultations with individual committee members should be planned as needed, but the full committee should meet at least twice a year to assure optimal communication and to prevent last-minute problems. Students should allow sufficient time for the appropriate discussions and approvals to occur, and should make a point of scheduling meetings well in advance.

#### **9.10.1. Guidelines for the Dissertation**

The dissertation must conform to all Graduate School requirements and policies as stated on the Graduate School website. The EHG program's specific guidelines are discussed in the following paragraphs.

The student may collect most or all of the data for the dissertation project or may use previously collected data. A student who chooses to use existing data is responsible for gaining access to the data, for ensuring that the data set is adequate to answer the research question, and for establishing that the data are of acceptable quality.

Students may choose a conventional or a manuscript-based dissertation format. The format should be agreed upon by the student, mentor and dissertation committee by the time of the Dissertation Proposal Defense. A single abstract summarizing the entire dissertation is required for both formats. The dissertation must meet all criteria (except those related to presentation format) specified in this handbook. The style of the dissertation should follow the Graduate School's dissertation style guide (<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/Electronic-Thesis-and-Dissertation-Style-Guide-2016-final.pdf>).

The conventional dissertation must be written by the student and may not include, as results, work that was conducted by others or work published prior to the submission of the GRP to the GPC. It must address a unified, hypothesis-based theme and should be organized as follows:

1. The first chapter should be a short introduction.
2. The second chapter should be a comprehensive critical literature review which leads to and supports the dissertation aims and hypotheses.
3. The third chapter should be a complete and detailed description of the study methods.
4. The fourth chapter should present the results of the student's original research, in sufficient detail for the committee to assess the student's accomplishments.
5. The fifth chapter should summarize and discuss the significance of the findings, especially in the context of published literature. It should include a discussion of the conclusions drawn from the research, and should make recommendations for further studies while clearly explaining the implications of the student's work.
6. The dissertation may include an appendix with additional tables and results deemed necessary to fully understand the data.

Like the conventional dissertation, the manuscript-based dissertation must be written by the student and may not include, as results, work that was conducted by others or work published prior to the submission of the GRP to the GPC. It must include a minimum of two original research manuscripts that address a unified, hypothesis-based theme. The student must have written and must be first author on both manuscripts and the manuscripts must be reviewed and determined suitable for publication in a peer-reviewed scientific journal by the readers and chair of the dissertation committee.

The manuscript-based dissertation should be organized as follows:

1. The first chapter should include a short introduction and a comprehensive critical literature review which leads to and supports the aims and hypotheses of the manuscripts.
2. The second chapter should be a complete and detailed description of the study methods.

3. The third, fourth, and possibly later chapters should be manuscripts that communicate the student's original research. Each chapter should be written as a complete document suitable for publication, although additional detail may be included if necessary to demonstrate the student's accomplishments to the dissertation committee.
4. The final chapter should integrate and discuss the significance of the findings reported in the manuscripts, especially in the context of published literature. It should include a discussion of the overall conclusions drawn from the research, and should make recommendations for further studies while clearly explaining the implications of the student's work.
5. The dissertation may include an appendix with additional tables and results deemed necessary to fully understand the data.

In preparing the dissertation, the student should be careful not to use the plural pronoun ("we") when referring to independent work that was done by the student.

The importance of clear and concise writing cannot be over-emphasized. Students are encouraged to take advantage of writing resources on campus throughout their time as a graduate student, but particularly during the dissertation writing phase. Resources include the UMB Writing Center (<http://www.umaryland.edu/writing/>), the UMB Dissertation Bootcamp, and various writing accountability groups on campus.

### **9.11. Preparing for Graduation**

At least six months before a student plans to graduate, he or she should consult the Graduate School website (<http://www.graduate.umaryland.edu/Current-Students/Academic-Calendar-and-Deadlines/>) for the required forms and deadlines including dates for submission of forms and materials. For clarification on any of the information provided, the student should contact the Graduate School (phone 410-706-7131, email [gradinfo@umaryland.edu](mailto:gradinfo@umaryland.edu)). Note that students must be registered for at least one credit in the semester during which they plan to graduate, including summer and winter semesters. All PhD students applying for graduation must have registered for a total of at least 12 dissertation research credits (PREV 899) and must have completed a successful Dissertation Defense. All degree requirements, including the Dissertation Defense and submission of the final dissertation to the Graduate School, must be completed within four years of admission to candidacy and no more than nine years after the first semester of enrollment in the doctoral program.

The Procedures for Examination of the Doctoral Dissertation is an essential document that summarizes the steps in preparation for the Dissertation Defense and graduation:

<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/Dissertation-Procedures.pdf>

Students are responsible for submitting all necessary forms in order to graduate, and for providing the Academic Coordinator with copies of all forms submitted to the Graduate School. These forms include:

Nomination of Members of Final Doctoral Examination Committee (due six months before the defense)

<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Academic-Progress/Nomination-of-Doctoral-Committee.pdf>

Application for Diploma (due date changes each semester – check Graduate School calendar)

<http://www.umaryland.edu/surfs/>

Certification of Completion of the Doctoral Dissertation (due two weeks before defense)

[http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify\\_dissertation.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify_dissertation.pdf)

Announcement of Doctoral Dissertation Defense (due two weeks before defense)

<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/announcement.pdf>

Once the Graduate School is aware of a student's upcoming Dissertation Defense, the student will receive information from the Graduate School regarding procedures for the commencement and hooding ceremonies. In addition, the Academic Coordinator will contact the student regarding program-specific graduation events.

### **9.12. Dissertation Defense**

Students are advised to consult the Graduate School calendar frequently during preparation for the Dissertation Defense. Important deadlines can be found at <http://www.graduate.umaryland.edu/Current-Students/Academic-Calendar-and-Deadlines/>.

No more than two weeks before the scheduled Dissertation Defense, the student's dissertation committee chair must complete and send to the Graduate School the Certification of Completion of the Doctoral Dissertation ([http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify\\_dissertation.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify_dissertation.pdf)). This form certifies that the committee chair and the readers consider that the dissertation is ready to be defended. In order to allow sufficient time for review of the dissertation, the student should provide the dissertation to the dissertation committee chair and readers at least one month before the Dissertation Defense. All major revisions should have been completed to the satisfaction of the dissertation committee prior to the Dissertation Defense.

The defense consists of a public oral presentation and question period, followed by a closed session during which the dissertation committee questions the student. All members of the dissertation committee must attend both the open and closed sessions. If it is impossible for a member to participate in person, permission for the member to participate by phone can be requested from the Program Director and, if approved, the Associate Dean of the Graduate School must be notified of the absence and of the proposed accommodations. In addition, the Program Director (or designee) must attend the defense. If the Program Director is on the student's dissertation committee, the Program Director must designate another GPC member to attend the defense. The student should include the Program Director or designee in the scheduling process.

The Dissertation Defense is open to all program faculty and graduate students. Members of the Graduate Faculty who are not on the student's dissertation committee may attend the closed session as observers but may not participate verbally or otherwise in the proceedings.

The Dissertation Defense is conducted and graded by the student's dissertation committee. The possible outcomes are pass with minor revisions, pass with significant revisions, and fail. If the outcome is "fail", the student may be given one more opportunity to repeat the defense.

A Report of Examination Committee form is sent by the Graduate School to the Graduate School-appointed Dean's Representative on the student's committee before the defense. The completed form must be returned to the Graduate School within two working days of the oral defense, with a copy to the Academic Coordinator.

### **9.13. Publication of Work Resulting from the Doctoral Dissertation**

Publication of manuscripts resulting from the dissertation is a critical accomplishment for research scholars, regardless of whether the student completes a manuscript-based dissertation or a conventional dissertation. It is also an essential contribution to the ongoing work of the mentor and research group who support the student's dissertation work. Questions of authorship should be discussed early in the process of dissertation writing. Students are expected to publish manuscripts based on their dissertations and are encouraged to submit manuscripts to journals for peer review as

they are completed prior to the Dissertation Defense. Although submission of the manuscripts is not required prior to graduation, students are expected to publish in a timely fashion.

## 10. THE MS DEGREE

The EHG program offers three MS degrees: MS in Human Genetics, MS in Epidemiology and Clinical Research (Epidemiology Track) and MS in Epidemiology and Clinical Research (Clinical Research Track). All three have a course requirement of 30 credits. Both tracks in the MS in Epidemiology and Clinical Research offer a thesis and a non-thesis option. The MS in Human Genetics offers a thesis option only.

A summary of milestones (other than course requirements) that must be completed by MS students is in Table 7.

**Table 7. Non-Course Degree Requirements for the MS in Epidemiology and Clinical Research and the MS in Human Genetics**

Requirement	Approval	MS in Epidemiology and Clinical Research (both tracks)		Human Genetics
		Thesis	Non-Thesis	
Research Abstract	Track Leaders	✓		✓
General Research Plan	Graduate Program Committee	✓		✓
Thesis Defense	Student's thesis committee	✓		✓
Rotations	Student's Track Leader			✓

### 10.1. MS (Thesis Option)

In order to complete the MS program in a timely way, the program in EHG recommends that, by the end of the spring semester of the first academic year in the program, students who have opted for the MS (thesis option) should have identified a research mentor and submitted a Research Abstract describing the proposed research and the proposed thesis committee. The GRP should be submitted by the beginning of the second academic year in the program.

#### 10.1.1. Research Abstract

Before beginning the thesis project, the student, with approval from the research mentor, must provide a brief Research Abstract and propose a thesis committee. (See guidelines for thesis committee selection below.) Guidelines regarding the Research Abstract are the same as those described in the "Research Abstract" section in the PhD chapter.

#### 10.1.2. General Research Plan

The purpose of the GRP is to assure that the proposed thesis project appears feasible and that the scope is appropriate for an MS thesis. The GPC reviews the GRP to judge whether the student should pursue development of the proposed research or should re-evaluate the area of interest. Membership of the student's proposed thesis committee is also subject to the approval of the GPC.

The rules for formatting and presenting the GRP and the criteria for evaluating the GRP are the same as those described in the "General Research Plan" section in the PhD chapter.

#### 10.1.3. Master's Thesis

The Master's thesis is required for the MS in Human Genetics. The MS in Epidemiology and Clinical Research (both tracks) offers a non-thesis option.

The purpose of the Master's thesis is to provide students with the opportunity to develop and demonstrate an advanced understanding and application of skills in scientific research by progressing through each of the following steps:

1. Formulation of a research question based on review of the literature and input from experts in the field of interest
2. Identification of methods and measurements that appropriately address the research question
3. Assembly of adequate data
4. Analysis and interpretation of results
5. Written and oral presentations of results

The student should identify an area of research for the Master's thesis through discussions with his or her advisor, Track Leader, and other faculty members. A Master's thesis should address an unanswered research question. The scope of the research must be such that the thesis is both of high quality and can be completed within the allocated time. There may be acceptable Master's research projects that do not entail collecting primary data. However, a student who chooses to use existing data is responsible for gaining access to the data, for ensuring that the data set is adequate to answer the research question, and for establishing that the data are of acceptable quality.

Students should consult the Graduate School website for the thesis style guide (<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/Electronic-Thesis-and-Dissertation-Style-Guide-2016-final.pdf>).

#### **10.1.4. MS Thesis Committee Selection**

The thesis committee must have between three and five members. At least three of the committee members must be members of the Graduate Faculty. All members must hold a doctoral degree or the highest degree for their discipline. Up to two members may be from programs other than EHG. In the GRP, the student should indicate the Graduate Faculty membership status and the program affiliations of each member of the proposed thesis committee. The thesis committee chair and two other committee members must be designated as “readers”. Requirements specific to the MS tracks are discussed below. Students should consult their Track Leader for guidance on committee composition.

For students in the MS in Epidemiology and Clinical Research (both tracks), the thesis committee chair must be a full-time, on-site member of the Graduate Faculty affiliated with the EHG program. In addition, students in the MS in Epidemiology and Clinical Research (Clinical Research Track) may identify a co-chair who is a member of the UMB clinical faculty at the rank of Assistant Professor or above with expertise in the biomedical field of the proposed research.

For students in the MS in Human Genetics, the thesis committee chair must be a full-time, on-site member of the Graduate Faculty. At least one member of the committee should be a member of the Human Genetics teaching faculty and a member with biostatistical expertise may be required depending on the research area. Students in this track should consult the Track Leader for guidance, if necessary.

#### **10.1.5. Master's Thesis Defense**

At least four weeks before the proposed Thesis Defense date, the student must provide the final version of the thesis to all thesis committee members. At least two weeks before the defense, the thesis committee chair and the two other committee members who have been designated as readers, must agree that the thesis is defensible, must sign the Certification of Completion of Master's Thesis form ([http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify\\_thesis.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify_thesis.pdf)) and must return it to the Graduate School. The Thesis Defense should be scheduled at least two weeks before the thesis submission deadline to allow time for minor revisions, which are almost always required. All major revisions should have been completed to the satisfaction of the thesis committee prior to the Thesis Defense.

The defense consists of a public oral presentation and question period, followed by a closed session during which the thesis committee questions the student. The open session is open to all program faculty and graduate students. All members of the student's thesis committee must attend both the

open and closed sessions. Members of the Graduate Faculty who are not on the student's thesis committee may attend the closed session as observers but may not participate verbally or otherwise in the proceedings.

The members of the thesis committee vote on whether the student has passed or failed. The student is deemed to have passed if a majority of members vote affirmatively. If a majority of members do not vote affirmatively, the members may decide to 1) accept the thesis pending minor modifications, 2) fail the thesis and require major revisions, or 3) fail the defense and require a repeat of the defense without requiring major revisions to the written document.

See Procedures for Examination of the Master's Thesis ([https://graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/ms\\_exam.pdf](https://graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/ms_exam.pdf)).

## **10.2. MS (Non-Thesis Option) – Milestones and Timeline**

At least six months before a student plans to graduate, he or she should consult the Graduate School website (<http://www.graduate.umaryland.edu/Current-Students/Academic-Calendar-and-Deadlines/>) for the required forms and deadlines. Note that students must be registered for at least one credit in the semester during which they plan to graduate, including summer and winter semesters. All degree requirements must be completed within five years of the first semester of enrollment.

Students are responsible for submitting all necessary forms in order to graduate and for providing the Academic Coordinator with copies of all forms submitted to the Graduate School. These forms include:

Application for Diploma (due date changes each semester – check Graduate School calendar)  
<http://www.umaryland.edu/surfs/>

Fulfillment of Course Requirements for Master's Degree (due date changes each semester – check Graduate School calendar) [http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/masters\\_courses.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/masters_courses.pdf)

### **10.2.1. Preparing for Graduation**

At least six months before a student plans to graduate, he or she should consult the Graduate School website (<http://www.graduate.umaryland.edu/student-resources/>) for the required forms and deadlines. Students are advised to consult the Graduate School calendar frequently during preparation for the Master's Thesis Defense (<http://www.graduate.umaryland.edu/Current-Students/Academic-Calendar-and-Deadlines/>). For clarification on any of the information provided, the student should contact the Graduate School (phone 410-706-7131, email [gradinfo@umaryland.edu](mailto:gradinfo@umaryland.edu)). Note that students must be registered for at least one credit in the semester during which the thesis is defended, including summer and winter semesters. All MS degree requirements must be completed within five years of the first semester of enrollment in the program. Students in the MS program (thesis option) who are applying for graduation must have registered for at least six thesis research credits (PREV 799) and must have completed a successful Thesis Defense.

Students are responsible for submitting all necessary forms in order to graduate and for providing the Academic Coordinator with copies of all forms submitted to the Graduate School. These forms include:

Nomination of Members of Final Thesis Defense Committee (due two months before the Thesis Defense)  
[http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Academic-Progress/masters\\_committee.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Academic-Progress/masters_committee.pdf)

Application for Diploma (due date changes each semester – check Graduate School calendar)  
<http://www.umaryland.edu/surfs/>

Fulfillment of Course Requirements for Master's Degree (due date changes each semester – check Graduate School calendar) [http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/masters\\_courses.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/masters_courses.pdf)

Certification of Completion of the Master's Thesis (due two weeks before the Thesis Defense) [http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify\\_thesis.pdf](http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Graduation-and-Degree-Certification/certify_thesis.pdf)

## **11. DUAL DEGREE PROGRAMS**

The EHG program offers two dual degree programs, one with the Gerontology doctoral program and one with the Pharmaceutical Health Services Research (PHSR) doctoral program. Students in these programs obtain an MS in Epidemiology and Clinical Research along with their doctoral degree in Gerontology or PHSR. Both graduate programs involved in the dual degree must approve the composition of the student's dissertation committee. At least one member of the student's dissertation committee must be an epidemiologist who is a member of the EHG program faculty. In addition, at least one member must be a biostatistician.

The student's dissertation committee must be approved by the Director of the EHG program. After the dissertation committee has been approved by the student's doctoral program, the student should submit his or her Nomination of Members for Final Doctoral Examination Committee form (<http://www.graduate.umaryland.edu/media/Graduate-School/Documents/Academic-Progress/Nomination-of-Doctoral-Committee.pdf>) to the Program Director of EHG by email with a copy to the EHG Academic Coordinator. The Program Director will respond by email within two weeks either approving the committee or requesting a change.

### **11.1. MS Epidemiology and Clinical Research/PhD Gerontology**

This dual degree program is available to students who are accepted into the Gerontology doctoral program and remain in good standing according to the requirements found on Graduate School website (<http://www.graduate.umaryland.edu/policies/>).

While primarily intended for students in the Epidemiology track, all Gerontology doctoral students are eligible to apply for admission to this program. Those interested in applying to the dual degree program should contact the Academic Coordinator for the Gerontology Doctoral Program.

#### **11.1.1. Course Requirements for the Epidemiology/Gerontology Dual Degree**

##### *Methods (15 credits)*

GERO 750 Theory/Methods I (3 credits)  
GERO 751 Theory/Methods II (3 credits)  
PREV 600 Principles of Epidemiology (3 credits)  
PREV 659 Observational Studies in Epidemiology (3 credits)  
PREV 758 Health Survey Research Methods (3 credits)

##### *Gerontology Core (15 credits)*

GERO 711 Biology of Aging (3 credits)  
GERO 672 Issues in Aging Policy (3 credits)  
GERO 681 Epidemiology of Aging (3 credits)  
GERO 700 Sociocultural Gerontology (3 credits)  
GERO 786 Psychological Aspects of Aging (3 credits)

##### *Biostatistics (11-12 credits)*

PREV 620 Principles of Biostatistics (3 credits)  
PREV 619 Introduction to SAS (1 credit)  
PREV 720 Statistical Methods in Epidemiology (3 credits)

PREV 721 Regression Analysis (2 credits)  
PREV 723 Survival Analysis (2 credits) or PREV 801 Longitudinal Data Analysis (3 credits)

*Other requirements*

PREV 803 Clinical Trials and Experimental Epidemiology (3 credits)  
Epidemiology elective from among PREV courses not already taken (3 credits)  
GERO 899 (doctoral dissertation research) (12 credits)  
CIPP 909 Responsible Conduct of Research (1 credit)

**11.2. MS Epidemiology/PhD PHSR**

This program is available to students who are accepted into the PHSR doctoral program and remain in good standing according to the requirements found on Graduate School website (<http://www.graduate.umaryland.edu/policies/>).

While primarily intended for students in the pharmacoepidemiology track, all PHSR doctoral students are eligible to apply for admission to this program. Those wishing to apply to the dual degree program should apply at the end of their second semester in the PHSR program.

**11.2.1. Course Requirements for the Epidemiology/PHSR Dual Degree**

*Methods (6 credits)*

PHSR 701 Research Methods I (3 credits)  
PHSR 702 Research Methods II (3 credits)

*Statistics (11 credits)*

PREV 619 Introduction to SAS (1 credit)  
PREV 620 Principles of Biostatistics (3 credits)  
PREV 720 Statistical Methods in Epidemiology (3 credits)  
PREV 721 Regression Analysis (2 credits)  
PREV 723 Survival Analysis (2 credits)

*PHSR Core (12 credits)*

PHSR 610 Pharmacy, Drugs and the Health Care System (3 credits)  
PHSR 620 Introduction to Health Behavioral Theory (3 credits)  
PHSR 650 CER & Pharmaceutical Economics I (3 credits)  
PHSR 704 Pharmacoepidemiology (3 credits)

*Epidemiology Core (15 credits)*

PREV 600 Principles of Epidemiology (3 credits)  
PREV 659 Observational Studies in Epidemiology (3 credits)  
PREV 803 Clinical Trials and Experimental Epidemiology (3 credits)  
Epidemiology electives from among PREV courses not already taken (6 credits)

*Other requirements*

PHSR 899 (doctoral dissertation research) (12 credits)  
12 credits of cognate as required by PHSR program