

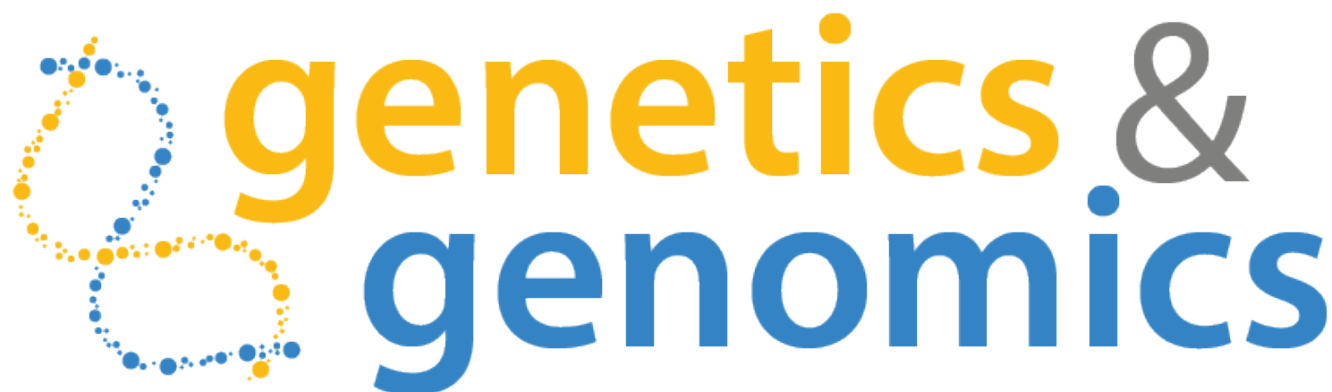
DEPARTMENT OF HUMAN GENETICS AND GENETICS AND GENOMICS HOME AREA

GRADUATE STUDENT HANDBOOK

ACADEMIC YEAR

2025-2026

THE



HOME AREA

HOSTED BY



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## **DOCTORAL DEGREE**

### **PROGRAM REQUIREMENTS**

#### **Advising**

Once students select a faculty mentor, typically at the end of the first year, the faculty mentor automatically becomes the student's adviser. A doctoral committee is constituted by the end of the second year, and its members act as additional advisers. Students are expected to meet with that committee at least once a year until graduation.

In the event of conflict between a student and the faculty mentor, the Director will be available for confidential consultation. Before taking any action, the Director should consult with members of the student's doctoral committee and/or the department's Chair and/or Vice Chairs.

#### **Major Fields or Subdisciplines**

The field of human genetics incorporates multiple areas of modern experimental biology (including but not limited to molecular and behavioral genetics, epigenetics, biochemistry, cell and developmental biology, imaging, and large-scale omics approaches such as genomics, transcriptomics and functional genomics) and of computational biology (including bioinformatics and biostatistics).

#### **Foreign Language Requirement**

None.

#### **Course Requirements**

Students are required to take the Human Genetics courses 236A and 236B or, under exceptional circumstances, equivalent graduate-level courses approved by the Director. Students must also complete the C234 course on Ethics and Accountability in Biomedical Research. All courses should be taken for a letter grade with the exception of the ethics course C234, which may be taken for Satisfactory/Unsatisfactory.

#### **Teaching Experience**

Students teach for two quarters as a teaching assistant in a department of the College of Letters and Science. The teaching is to be performed preferably in years two and three. Students are encouraged to teach in Life Sciences 7B (the genetics component of the Life Sciences Core Curriculum) as teaching a general course in genetics reinforces understanding of fundamental aspects of the field.

Students who have completed the first quarter of the teaching experience requirement may waive the second quarter by discussing the option with their faculty mentor. Following a favorable discussion, students may contact the Director to briefly explain the main motivations for waiving the second

quarter, e.g., based on career goals, conflict with extramural funding, etc. The faculty mentor may also be contacted to ensure that approval of the waiver would not cause an unexpected funding issue.

## **Written and Oral Qualifying Examinations**

Academic Senate regulations require all doctoral students to complete and pass university written and oral qualifying examinations prior to doctoral advancement to candidacy. Also, under Senate regulations, the University Oral Qualifying Examination is open only to the student and appointed members of the doctoral committee. In addition to university requirements, some graduate programs have other pre-candidacy examination requirements. What follows in this section is how students are required to fulfill all of these requirements for this doctoral program.

All committee nominations and reconstitutions adhere to the new Minimum Standards for Doctoral Committee Constitution.

The Departmental Written Qualifying Examination (also known as the 'First Exam') and the University Oral Qualifying Examination (also known as the 'Second Exam') must be passed before students are advanced to candidacy for the doctoral degree. The two examinations are distinct and cannot be combined into a single examination. Prior to the examinations, students nominate a doctoral committee composed of at least four faculty members following university guidelines which must be approved by the Graduate Division. The faculty mentor is excused from participating in the Departmental Written Qualifying Examination, which is administered by the remaining members of the doctoral committee. All members of the doctoral committee, including the faculty mentor, administer the University Oral Qualifying Examination.

The Departmental Written Qualifying Examination takes place during early stages of the student's dissertation research project, typically during the second year, and must be passed by the end of the fourth year in order to avoid a recommendation for academic disqualification from the program. The goal of the Departmental Written Qualifying Examination is to evaluate the student's ability to think as a scientist, i.e., to propose and critically evaluate experiments or method developments that would potentially expand knowledge in the principal field of study. The written part of the first exam is expected to be in the format of the NIH F31 fellowship application. The student writes a proposal following the style of the National Institutes of Health (NIH) National Research Service Award (NRSA) applications (<https://grants.nih.gov/grants/how-to-apply-application-guide.html#inst#>). It includes the following 3 research parts: Specific aims (1 page limit), Research Strategy (6 pages) and Bibliography/References cited (no page limit). No other F31 sections are needed for the written part of the Written Qualifying Exam. One or two weeks after submission of the written proposal to the doctoral committee, the student defends the proposal in an oral presentation. The topic of the proposal is related to the ongoing research project of the student in the laboratory of the faculty mentor. However, in the Departmental Written Qualifying Examination the project itself is not under evaluation, as it is expected to be in its early stages. The oral part of the examination consists of a discussion of the proposal and of any additional questions posed by the committee to probe the student's general knowledge and understanding of human genetics.

The University Oral Qualifying Examination should take place before the end of the fourth year in the graduate program, typically during the third year. The goal of this examination is to evaluate the dissertation research project, i.e., whether it represents original, independent research and constitutes a distinct contribution to knowledge in the principal field of study, as well as whether it is feasible for the students to complete the project within the expected time-to-degree. To this end, the student submits a written proposal that clearly states the title and specific aims of the doctoral dissertation and explains the significance, progress to date, and the approach(es) and time line to bring the project to completion. One or two weeks after submission of the written component, the student defends the proposal in an oral presentation before the doctoral committee.

### **Advancement to Candidacy**

Students are advanced to candidacy upon successful completion of the written and oral qualifying examinations.

### **Doctoral Dissertation**

Every doctoral degree program requires the completion of an approved dissertation that demonstrates the student's ability to perform original, independent research and constitutes a distinct contribution to knowledge in the principal field of study.

### **Final Oral Examination (Defense of Dissertation)**

Required for all students in the program.

Please visit the [UCLA Graduate Division website](#) for other helpful information on filing your dissertation and filing deadlines.

### **Time-to-Degree**

DEGREE	NORMATIVE TIME TO ATC (QUARTERS)	NORMATIVE TTD	MAXIMUM TTD
Ph.D.	10	16	24

### **Academic Disqualification and Appeal of Disqualification**

#### ***University Policy***

A student who fails to meet the above requirements may be recommended for academic disqualification from graduate study. A graduate student may be disqualified from continuing in the graduate program for a variety of reasons. The most common is failure to maintain the minimum cumulative grade point average (3.00) required by the Academic Senate to remain in good standing (some programs require a higher grade point average). Other examples include failure of examinations, lack of timely progress toward the degree and poor performance in core courses. Probationary

students (those with cumulative grade point averages below 3.00) are subject to immediate dismissal upon the recommendation of their department. University guidelines governing academic disqualification of graduate students, including the appeal procedure, are outlined in *Standards and Procedures for Graduate Study at UCLA*.

***Special Departmental or Program Policy***

Doctoral students must complete and pass the Departmental Written Qualifying Examination (also known as the 'First Exam') by the end of their fourth year in the program. Students will be allowed two opportunities to pass the examination within the above time frame and if the examination is not passed, the student will be recommended for academic disqualification.

UCLA is accredited by the Western Association of Schools and Colleges and by numerous special agencies. Information regarding the University's accreditation may be obtained from the Office of Academic Planning and Budget, 2107 Murphy Hall.

**DOCTORAL DEGREE****RECOMMENDED TIMELINE**

<b>Year/Quarter</b>		<b>Fall</b>	<b>Winter</b>	<b>Spring</b>	<b>Summer</b>
<b>1<sup>st</sup> Year</b>		<ul style="list-style-type: none"> <li>• HUM GEN 236A</li> <li>• HUM GEN 596</li> <li>• First lab rotation*</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 236B</li> <li>• HUM GEN 596</li> <li>• Second lab rotation*</li> </ul>	<ul style="list-style-type: none"> <li>• MIMG C234</li> <li>• HUM GEN 596</li> <li>• Third lab rotation*</li> <li>• Choose faculty mentor/dissertation lab*</li> </ul>	<ul style="list-style-type: none"> <li>• Dissertation research</li> </ul>
<b>2<sup>nd</sup> Year</b>	<ul style="list-style-type: none"> <li>• TA/495 (1 quarter)</li> <li>• Constitute doctoral committee*</li> <li>• Annual committee meeting*</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 596</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 596</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 596</li> <li>• Dissertation research</li> <li>• First/written qualifying examination*</li> </ul>	<ul style="list-style-type: none"> <li>• Dissertation research</li> </ul>
<b>3<sup>rd</sup> Year</b>	<ul style="list-style-type: none"> <li>• TA/495 (1 quarter)</li> <li>• Annual committee meeting*</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 596</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 596</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 596</li> <li>• Dissertation research</li> <li>• Second/oral qualifying examination*</li> </ul>	<ul style="list-style-type: none"> <li>• Dissertation research</li> </ul>
<b>4<sup>th</sup> Year</b>	<ul style="list-style-type: none"> <li>• Annual committee meeting*</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 599</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 599</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 599</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• Dissertation research</li> </ul>
<b>5<sup>th</sup> Year</b>	<ul style="list-style-type: none"> <li>• Annual committee meeting*</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 599</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 599</li> <li>• Dissertation research</li> </ul>	<ul style="list-style-type: none"> <li>• HUM GEN 599</li> <li>• Dissertation research</li> <li>• Dissertation defense*</li> <li>• File dissertation*</li> </ul>	

\*Contact your Student Affairs Officer for paperwork that needs to be completed.

**DOCTORAL DEGREE****CURRICULUM**

From the first quarter of graduate study to the last, students are required to enroll in no less than 12 units per quarter. This is achieved by combining required courses and electives, which carry a fixed number of units, with laboratory research (596 or 599 courses). While required courses and electives have fixed unit values, the unit value for courses numbered 596 or 599 will equal the number of units needed, in addition to required courses and electives, to reach the required 12 units per quarter.

To sign up for classes, visit <https://my.ucla.edu/>.

### Core Courses

- **Human Genetics 236A. Advanced Human Genetics A: Molecular Aspects.** Units: 4.0. Lecture, three hours. Recommended preparation: prior knowledge of basic concepts in molecular biology and genetics. Advanced topics in human genetics related to molecular genetics and relevant technologies. Topics include genomic technologies, human genome, mapping and identification of disease-causing mutations, transcriptomics, proteomics, functional genomics, epigenetics, and stem cells. Reading materials include original research articles and reviews or book chapters. Letter grading. **(Fall)**
- **Human Genetics 236B. Advanced Human Genetics B: Genetics and Genomics Aspects.** Units: 4.0. Seminar, four hours; discussion, four hours. Human genetics is fundamental scientific field that studies inheritance in humans and therefore also has immediate practical value for human health and disease. Identification of genes and genetic variation involved in human diseases, traits, and behavior is one of main goals of human genetic studies. Genomic technologies are rapidly advancing and allow for comprehensive and in-depth analysis of human genome. Covers different themes in field of human genetics, including genetics of monogenic disorders, genetic mapping of complex traits, transcriptome analysis, and epigenomic studies of human disease. Overview of human genetics through examination of selection of papers that highlight each of these themes. Letter grading. **(Winter)**
- **Microbiology, Immunology, and Molecular Genetics C234. Ethics and Accountability in Biomedical Research.** Units: 2.0. Seminar, two hours. Designed for graduate students and undergraduates who have credit for life sciences or biomedical individual studies 199 course. Responsibilities and ethical conduct of investigators in research, data management, mentorship, grant applications, and publications. Responsibilities to peers, sponsoring institutions, and society. Conflicts of interest, disclosure, animal subject welfare, human subject protection, and areas in which investigational goals and certain societal values may conflict. Concurrently scheduled with course C134. S/U grading. **(Spring)**

The following TAsip course is a one-time course students take in conjunction with the quarter they decide to TA:

- **495. Preparation for Teaching.** Units: 2.0. Prepares students for college-level teaching and provides professional development. Discusses practical and theoretical issues about teaching in a specific



discipline. Taken in conjunction the first time the student teaches as a teaching assistant. Each department may have a different course number.

**To complete the 12 units per quarter, students can take electives and one of the following:**

- **Human Genetics 596. Directed Individual Research.** Units: 2.0 to 12.0. Tutorial, to be arranged. Individual study or research for graduate students. May be repeated for credit. S/U grading. (For students prior to advancement to candidacy.)
- **Human Genetics 599. Research for and Preparation of Ph.D. Dissertation.** Units: 2.0 to 12.0. Tutorial, to be arranged. Preparation of research data and writing of PhD dissertation. May be repeated for credit. S/U grading. (For students after advancement to candidacy.)

### Possible Elective Courses

Some of these courses have prerequisites or are not consistently offered every year. Please contact the course instructor/director to inquire on requirements and availability.

Please visit <https://sa.ucla.edu/ro/public/soc/> to view these courses in the schedule of classes.

- **Bioinformatics 275A. Applied Bioinformatics Lab for Biologists: Fundamentals.** Units: 2.0. Laboratory, six hours (five weeks). Introduction to contemporary methods and techniques in bioinformatics that are used to analyze high-throughput genomic data. Topics include introduction to UNIX, Next Generation Sequence (NGS) data analysis, ChIP-seq, BS-seq and RNA-seq, and others. Letter grading.
- **Bioinformatics 275B. Applied Bioinformatics Lab for Biologists: Intermediate** Units: 2.0. Laboratory, six hours (five weeks). Requisite: course 275A. Contemporary methods and techniques in bioinformatics that are used to analyze high-throughput genomic data. Topics include Galaxy server, R, MATLAB, Python, and variant calling. Letter grading.
- **Biomathematics M207A. Theoretical Genetic Modeling.** Units: 4.0. (Same as Biostatistics M272 and Human Genetics M207A.) Lecture, three hours; discussion, one hour. Requisites: Mathematics 115A, 131A, Statistics 100B. Mathematical models in statistical genetics. Topics include population genetics, genetic epidemiology, gene mapping, design of genetics experiments, DNA sequence analysis, and molecular phylogeny. S/U or letter grading.
- **Biomathematics M207B. Applied Genetic Modeling.** Units: 4.0. (Same as Biostatistics M237 and Human Genetics M207B.) Lecture, three hours; laboratory, one hour. Requisites: Biostatistics 200B, 202B (may be taken concurrently) or equivalent coursework or consent of instructor. Covers basic genetic concepts (prior knowledge of human genetics not required). Topics include statistical methodology underlying genetic analysis of both quantitative and qualitative complex traits. Laboratory for hands-on computer analysis of genetic data; laboratory reports required. Course complements M207A; students may take either and are encouraged to take both. S/U or letter grading.

- **Biomathematics M211. Mathematical and Statistical Phylogenetics.** Units: 4.0. (Same as Biostatistics M239 and Human Genetics M211.) Lecture, three hours; laboratory, one hour. Preparation: undergraduate course in statistics and probability. Theoretical models in molecular evolution focusing on phylogenetic techniques. Topics include evolutionary tree reconstruction methods, studies of viral evolution, phylogeography and coalescent approaches. Examples provided from evolutionary biology and evolutionary medicine, with unique focus on implications for human disease processes. Laboratory for hands-on computer analysis of sequence data. S/U or letter grading.
- **Biostatistics 200A. Methods in Biostatistics A.** Units: 4.0. Lecture, three hours; discussion, one hour; laboratory, one hour. First course in biostatistical methods intended for graduate students in biostatistics to prepare students pursuing careers as practicing biostatisticians. Prior knowledge of probability or statistics not assumed. Students should have working knowledge of calculus and be very comfortable with mathematical and algebraic reasoning. Introduction to basic concepts in analysis, presentation of data, and statistical aspects of design of studies. Special emphasis is given to application of statistical methods to public health, medical, biological, and health sciences. Interpretation and communication of statistical findings is stressed. Focus on methodology, applications, and concepts rather than mathematical statistics or probability theory. S/U or letter grading.
- **Biostatistics 200B. Methods in Biostatistics B.** Units: 4.0. Lecture, three hours; discussion, one hour; laboratory, one hour. Preparation: linear algebra. Requisite: course 200A. Designed for students pursuing graduate degrees in biostatistics. Theory and practice of linear regression analysis and analysis of variance (ANOVA). S/U or letter grading.
- **Ecology and Evolutionary Biology M200A. Evolutionary Biology.** Units: 4.0. (Same as Earth, Planetary, and Space Sciences M216.) Lecture, two hours; discussion, two hours. Current concepts and topics in evolutionary biology, including microevolution, speciation and species concepts, analytical biogeography, adaptive radiation, mass extinction, community evolution, molecular evolution, and development of evolutionary thought. S/U or letter grading.
- **Ecology and Evolutionary Biology C235. Population Genetics.** Units: 4.0. Lecture, three hours; discussion, one hour. Basic principles of genetics of population, dealing with genetic structure of natural populations and mechanisms of evolution. Equilibrium conditions and forces altering gene frequencies, polygenic inheritance, molecular evolution, and methods of quantitative genetics. Concurrently scheduled with course C135. S/U or letter grading.
- **Human Genetics CM224. Machine Learning Applications in Genetics.** Units: 4.0. (Same as Bioinformatics M224 and Computer Science CM224.) Lecture, four hours; discussion, two hours; outside study, six hours. Requisites: Computer Science 32 or Program in Computing 10C with grade of C- or better, Mathematics 33A, and one course from Civil Engineering 110, Electrical and Computer Engineering 131A, Mathematics 170A, Mathematics 170E, or Statistics 100A. Designed for engineering students as well as students from biological sciences and medical school. Introduction to computational analysis of genetic variation and computational interdisciplinary

research in genetics. Topics include introduction to genetics, identification of genes involved in disease, inferring human population history, technologies for obtaining genetic information, and genetic sequencing. Focus on formulating interdisciplinary problems as computational problems and then solving those problems using computational techniques from statistics and computer science. Concurrently scheduled with course CM124. Letter grading.

- **Human Genetics C244. Genomic Technology.** (4.0. units) Lecture, three hours; discussion, one hour. Requisite: Life Sciences 4. Survey of key technologies that have led to successful application of genomics to biology, with focus on theory behind specific genome-wide technologies and their current applications. Concurrently scheduled with course C144. S/U or letter grading.
- **Human Genetics M265. Computational Methods in Genomics.** Units: 4.0. (Same as Bioinformatics M225 and Computer Science M225.) Lecture, two and one half hours; discussion, two and one half hours; outside study, seven hours. Introduction to computational approaches in bioinformatics, genomics, and computational genetics and preparation for computational interdisciplinary research in genetics and genomics. Topics include genome analysis, regulatory genomics, association analysis, association study design, isolated and admixed populations, population substructure, human structural variation, model organisms, and genomic technologies. Computational techniques and methods include those from statistics and computer science. Letter grading.
- **Human Genetics 282. Topics on Scientific Careers.** Units: 2.0. Lecture, two hours. Limited to graduate students. Covers topics related to scientific careers such as scientific writing and presentation (including to non-scientific audiences), grant writing and reviewing, curricula vitae, hiring process, social media usage, developing short- and long-term goals, and balancing career and non-work life. Exploration of differences between industry, government, teaching-college, and research-college careers. Active participation and oral and written presentations required. S/U grading.
- **Statistics C236. Introduction to Bayesian Statistics.** Units: 4.0. Lecture, three hours; discussion, one hour. Recommended requisite: course 200A or 200B. Designed for graduate students. Introduction to statistical inference based on use of Bayes theorem, covering foundational aspects, current applications, and computational issues. Topics include Stein paradox, nonparametric Bayes, and statistical learning. Examples of applications vary according to interests of students. Concurrently scheduled with course C180. S/U or letter grading.
- **Statistics M254. Statistical Methods in Computational Biology.** Units: 4.0. (Same as Bioinformatics M223 and Biomathematics M271.) Lecture, three hours; discussion, one hour. Preparation: elementary probability concepts. Requisite: course 100A or 200A or Bioinformatics M221. Introduction to statistical methods developed and widely applied in several branches of computational biology, such as gene expression, sequence alignment, motif discovery, comparative genomics, and biological networks, with emphasis on understanding of basic statistical concepts and use of statistical inference to solve biological problems. Letter grading.

## DOCTORAL DEGREE

## **LABORATORY ROTATIONS**

The laboratory rotations consist of 10-week rotations in the fall, winter, and spring quarters. Three rotations are allowed for the academic year. All rotations must be approved by the Home Area Director. These rotations are intended to serve as a tool for finding a suitable thesis lab.

Information on faculty affiliated with the Genetics and Genomics Home Area can be found at <https://medschool.ucla.edu/human-genetics/core-faculty>.

## DOCTORAL DEGREE

### MINIMUM STANDARDS FOR DOCTORAL COMMITTEE CONSTITUTION

1. All doctoral committees require a minimum of four members among whom a minimum of three members must hold current UCLA Academic Senate faculty appointments limited to Professor (any rank), Professor or Associate Professor Emeritus, Professor in Residence (any rank), or Acting Professor or Acting Associate Professor. Two of the three doctoral committee members from UCLA must hold the rank of professor or associate professor (regular or in-residence series).
2. One of the three UCLA members may be an Adjunct Professor (any rank) or Professor of Clinical X (any rank) who is certified and approved by the Committee on Degree Programs (CDP).
3. The Chair always must hold a current Academic Senate faculty appointment at UCLA in the same department or interdepartmental program as the student.
4. Each program or department may set additional requirements above the UCLA minimum standards in their Program Requirements regarding:
  - UCLA members (e.g., all three must hail from the home department, two out of three from the same discipline as the student, etc.)
  - Parameters for service as a Co-Chair
  - Minimum academic credentials of an additional member
5. Only one committee member may hold an Academic Senate faculty appointment or its academic equivalent at another accredited university or college (UC or non-UC) without need of an exception from the Graduate Division.
6. All committee members read, approve, and certify the dissertation. Under unusual circumstances, a department or interdepartmental program may petition the Committee on Degree Programs via the Graduate Division for an exception that would allow three committee members (including the Chair and at least one other UCLA member) to serve as certifying members in lieu of the full committee. An approved exception would apply to all doctoral committees of graduate students in that department or interdepartmental program for a period of up to ten years.
7. All committee members must certify that the fairness, equity, and academic integrity of the oral qualifying examination and the final oral examination (dissertation defense) have been preserved by the doctoral committee.
8. Only one committee member (never the Chair or Co-Chair) may participate remotely in an oral qualifying examination or final oral examination (defense of the dissertation). Remote participation must be a matter of necessity rather than convenience. The student must petition the committee chair in advance of the examination to allow one member to participate remotely; the committee Chair must provide written approval to the student ahead of the examination. The technology required for remote participation must allow for the participant to see/be seen by and hear/be heard by all committee members and have access to visual materials simultaneously. Although no exception petition will be required for one committee member participating remotely, the department/program must notify the Graduate Division of the remote participation within 14 business days of the examination. Under rare circumstances, the department or inter-departmental program Chair may petition the Graduate Division for an exception to allow a second member (not the Chair or Co-Chairs) to participate remotely in a doctoral oral qualifying examination or a final oral examination (defense of the dissertation).

9. Constituting a doctoral committee and meeting with said doctoral committee at least once per academic year (starting with the second academic year). Examinations dates are counted as an annual meeting.

## **DOCTORAL DEGREE**

### **FIRST (WRITTEN QUALIFYING) AND SECOND (ORAL QUALIFYING) EXAMINATIONS**

Students are required to prepare two short research proposals broadly related to the field of human genetics.

The doctoral committee determines whether the student passes each of the two exams, and determines whether a student who fails an exam is allowed to repeat it. Only one re-examination per exam is allowed.

#### **Written Proposal**

Copies should be distributed to the doctoral committee member's two weeks before the oral exam and student should reference the NRSA format proposal guidelines. Each written proposal must include specific aims, the scientific rationale, experimental methods, anticipated results and interpretations, potential future directions, and bibliography. Students will be evaluated on their understanding of the proposed research, on their ability to devise appropriate and original experimental strategies, and on their ability to write clearly and concisely.

Faculty advisors may provide feedback on exam proposals and written materials, and students are encouraged to practice oral presentations with their laboratory members. Faculty advisors may also offer guidance on the development and refinement of specific aims. However, faculty advisors may not extensively assist in writing draft versions of proposals or examinations, nor may they write any portion of the student's proposal. The proposal must represent the student's independent work and original writing, demonstrating their ability to independently develop and articulate research proposals, write comprehensive examination materials, and present and defend their research concepts. While the written work must be the student's own, students are encouraged to seek constructive feedback from faculty advisors on completed drafts, practice presentations with laboratory colleagues, and engage in discussions about research methodology and aims.

The examination process is designed to assess each student's individual capabilities in research conceptualization, scientific writing, and oral communication. All submitted work must reflect the student's personal effort and understanding.

#### **Advancement to Candidacy and Subsequent Committee Meetings**

Students are advanced to candidacy following satisfactory completion of course requirements and the written and oral qualifying examinations. Advancement occurs when a successful "Report on the Qualifying Oral Exam" is received by the Graduate Division, which is submitted by the department SAO.

The doctoral advancement to candidacy fee is automatically charged to the BruinBill account at the time advancement occurs.

Once students pass the Oral Qualifying Exam, the student should schedule an annual meeting with the doctoral committee so that the committee can assess the student's progress and provide advice. At each meeting, the student should take 20 to 30 minutes to present the status of the thesis work, including both positive and negative results.

Once a doctoral student at UCLA advances to candidacy, they become eligible for a waiver of their NRST for a maximum of nine consecutive quarters following ATC. This provides a significant financial benefit to international graduate students.

### **Timely Progress to Degree**

As a policy of the department students are required to meet with their doctoral committee at a minimum of once per year for one of the above-mentioned exams or to discuss the progress of student's degree requirements. It is the responsibility of the student to set up these meetings and report them to the SAO and Graduate Student Advisor after they have taken place.

Failure to comply with the time schedule may result in disqualification from the Ph.D. program. Decision to advance the student to candidacy, to allow a student to repeat the oral, or to disqualify a student will be based on the quality of the written proposal, the adequacy of the oral presentation, the student's overall academic record as reflected in coursework and examinations, and the student's research ability and productivity.

### **Preparing for the First (Written Qualifying) Exam**

1. Obtain a "Nomination of Doctoral Committee" worksheet from your SAO, or complete this form online at <https://grad.ucla.edu/gasaa/library/docnomin.pdf> to nominate your doctoral committee. Once completed bring to the SAO in 6506 Gonda to review. Once approved by SAO, take form to 1255 Murphy Hall.
2. Select at least four committee members (see requirements on back of form).
3. Return completed worksheet to graduate affairs office **at least three** weeks before the date of the first oral exam.
4. Await approval of the committee from the Graduate Division. **The exam cannot take place until the committee has been approved by the Graduate Division.**
5. Schedule the exam. Coordinate a time with the committee members and reserve a room (see the Student Affairs Officer). As a reminder, your dissertation mentor is not allowed in the room while your exam is taking place.

6. It is **strongly suggested** that the student remind the committee members one or two days before the exam. The exam cannot proceed if any members are not present at the exam.
7. The SAO prepares the student's academic file, including the "Report on the First Exam" form, to be signed by committee members after the exam and returned to the SAO.

### **Preparing for the Second (Oral Qualifying) Exam**

1. If changes to the committee membership are needed, a "Reconstitution of Doctoral Committee" form must be completed, signed by committee members and submitted to Graduate Division for approval. The Graduate Division requires at least three weeks to process these changes. See SAO for forms and assistance.
2. Coordinate a date/time with the committee members. Notify the SAO of the date/time of the exam as soon as one is proposed. The SAO will help you reserve a room. It is **strongly suggested** that the student remind the committee members one or two days before the exam. The Oral Qualifying Exam is open to committee members and the student **only**.
3. UCLA faculty and students must attend oral qualifying examinations or final oral examinations (defense of dissertation) in person. If the student requests it or agrees to a request from the committee chair or co-chairs, non-UCLA faculty or external subject matter experts serving on doctoral committees may participate remotely in oral qualifying examinations and final defenses with the approval of the committee chair or co-chairs. Requests for the remote participation of the student or UCLA faculty require special approval from the Faculty Director. Approval may be granted for the following reasons: health, difficulty scheduling an in-person examination, UCLA faculty or student located off campus, and financial hardship.
4. The SAO prepares the student's academic file, including the "Report on the Oral Qualifying Exam" form, to be signed by committee members after the exam and returned to the SAO.

### **After the Second (Oral Qualifying) Exam**

1. The Report on the Qualifying Examination will be forwarded to Graduate Division by the SAO.
2. The student "advances to candidacy" when a successful "Report on the Oral Qualifying Exam" is received and processed by the Graduate Division. **A \$90.00 fee will be billed to your BAR Account (in two charges of \$45.00). The PI is responsible for covering the fee through a stipend or reimbursement.**

### **Final Oral Examination (Defense of Dissertation)**

Final Oral Examination (Defense of Dissertation) is required for all students in the program. This is a public event and anyone is able to attend.

When a student is nearing completion of the body of work recommended or agreed upon by their PI and committee members, the student should begin to formally prepare for the defense. The defense



consists of the student's public presentation of their work, an open question and answer session, and a closed discussion session with only the student and their committee members.

Students are responsible for scheduling the time and location for the defense when all committee members are available to attend. Before the defense, students should write or assemble their dissertation and distribute it to their PI and committee members at least two weeks in advance of the scheduled defense. The dissertation has no minimum or maximum length, but it should detail all of the work completed for the student's research project. Often, papers that students have published or manuscripts that students have drafted for submission to journals, can be modified or used as chapters in the dissertation. The precise content and length of the dissertation will vary by student, and should be discussed with the student's PI. Text formatting requirements can be found in the "Thesis and Dissertation Formatting and Filing Guide" provided by the UCLA Graduate Division at this website: <https://grad.ucla.edu/gasaa/library/thesisintro.htm>

Students should also prepare a 45-minute to 1-hour presentation reviewing the main research questions investigated, approaches taken, and major results from their thesis work. This presentation is intended to give an overview of the full thesis project, and should be accessible to the public audience attending the defense. Students will demonstrate a more detailed and thorough understanding of his or her work in the dissertation text and during the question and answer sessions following the presentation. After the defense, the student's PI and/or committee members may have comments or edits that must be incorporated into the final draft of the dissertation before it can be filed. Filing is done electronically, and all committee members will receive an email notification to sign off their final approval of the students' dissertation and defense. No additional hard copy form or signatures from committee members are required at the defense itself. If students are planning to formally complete their degree by filing their dissertation within a specific academic quarter, they should consult the UCLA Graduate Division for specific deadlines and procedures for filing.

Please visit the [UCLA Graduate Division website](#) for other helpful information on filing your dissertation and filing deadlines.

## **MASTER'S DEGREE**

### **PROGRAM REQUIREMENTS**

#### **Advising**

Students entering the master's program are expected to identify a faculty mentor to serve as their adviser. For as long as no faculty mentor is identified, the departmental Director (appointed by the Chair) will serve as the adviser.

#### **Areas of Study**

The field of human genetics incorporates multiple areas of modern experimental biology (including but not limited to molecular and behavioral genetics, epigenetics, biochemistry, cell and developmental biology, imaging, and large-scale omics approaches such as genomics, transcriptomics and functional genomics) and of computational biology (including bioinformatics and biostatistics).

#### **Foreign Language Requirement**

None.

#### **Course Requirements**

Students are required to take the Human Genetics courses 236A and 236B or, under exceptional circumstances, equivalent graduate-level courses approved by the Director. Students must also complete the C234 course on Ethics and Accountability in Biomedical Research. Elective courses must be taken to complete the nine courses (36 units) required for the master's degree, with at least five of them (20 units) being at graduate level. All courses should be taken for a letter grade with the exception of the ethics course C234, which may be taken for Satisfactory/Unsatisfactory. No more than two independent study courses (eight units) in the 500 series may be applied toward the minimum course requirement of 36 units for the master's degree, and only one of these (four units) may be applied toward the minimum requirement of 20 units in graduate courses.

#### **Teaching Experience**

Not required.

#### **Field Experience**

Not required.

#### **Capstone Plan**

None.

**Thesis Plan**

Every master's degree thesis plan requires the completion of an approved thesis that demonstrates the student's ability to perform original, independent research.

A written thesis is required for master's degree students. A thesis committee composed of at least three faculty members helps the student to plan the thesis research and makes a recommendation on granting the terminal degree.

**Time-to-Degree**

DEGREE	NORMATIVE TIME TO ATC (QUARTERS)	NORMATIVE TTD	MAXIMUM TTD
M.S.	9	9	24

## FUNDING

### Non-Resident Supplemental Tuition and Establishing California Residency

Non-resident tuition will be provided for all out-of-state U.S. citizens and permanent residents for the first year of graduate study only. Any U.S. citizen or permanent resident who has not qualified for California residency by the beginning of the Fall quarter of the second year will be personally responsible for payment of any non-resident tuition charges incurred in years two and beyond. Information on procedures required for establishing California residency, distributed by the Graduate Division to all entering students at the time of acceptance, appears in the General Catalog. All non-resident students (international students excluded) should familiarize themselves with these requirements and begin the necessary steps to qualify immediately. All inquiries concerning residency requirements should be directed to the Residence Deputy (1113 Murphy Hall).

### Types of Support

1. **Stipend or some fellowship-based support** is a form of merit-based financial assistance to support your education.

*Timing.* Disbursements on the 15<sup>th</sup> to 20<sup>th</sup> of the month for the following months work. Delays in disbursement may occur due to administrative processing time.

*Taxability.* Stipends are typically taxable and the rules of taxation differ between international and domestic students. International taxation depends on the country of residence. Generally, taxes are withheld from stipends for international students. Domestic students do not have taxes withheld from stipends; therefore, domestic students may need to pay taxes in quarterly estimates. For more information, visit the Graduate Division Fellowship and Taxation page:

<https://grad.ucla.edu/funding/financial-aid/tax-information-forms-for-ucla-fellowship-recipients/>.

2. **Salary or employment-based support or some fellowship-based support** comes from jobs in roles such as Teaching Assistant (TA) and Graduate Student Researcher (GSR) that provide experience in research and teaching. At some point during your training, you will probably be supported as a GSR or TA. If so, the living allowance will be paid to you as salary.

*Timing.* Disbursements generally occur on the 1<sup>st</sup> of the month for the following the previous months work.

*Taxability (salary or employment-based support).* Your earnings from employment-based support are generally taxable, and taxes are withheld according to information you provide on your W-4 form when you are hired.

*Taxability (fellowship-based support).* Amounts are typically taxable, and the rules of taxation differ between international and domestic students. International taxation depends on the country of residence. Generally, taxes are withheld from support amounts for international students. Domestic students do not have taxes withheld; therefore, domestic students may need to pay

taxes in quarterly estimates. For more information, visit the Graduate Division Fellowship and Taxation page: <https://grad.ucla.edu/funding/financial-aid/tax-information-forms-for-ucla-fellowship-recipients/> .

*UC Defined Contribution Plan.* Non-exempt student employees (i.e., not enrolled or not meeting the required minimum course load), such as GSR appointed in the summer, participate in the Defined Contribution Plan (the “DC Plan”) as Safe Harbor participants. You are automatically enrolled in the DC Plan as long as you are employed by the University of California. Safe Harbor participants automatically contribute, on a pretax basis, 7.5% of their wages beginning the first day of an eligible appointment. You may also make voluntary after-tax contributions to the DC Plan. Additional information is available at: <https://ucnet.universityofcalifornia.edu/forms/pdf/retirement-savings-program-information-for-safe-harbor-participants.pdf>.

## OTHER INFORMATION

### eRA Commons Account

E-mail [erahelp@research.ucla.edu](mailto:erahelp@research.ucla.edu) to request for an eRA Commons ID. They will need the following:

- First and last name
- UID
- E-mail address
- Role (here is the list of eRA commons user roles:  
[https://era.nih.gov/files/eRA\\_Commons\\_Roles.pdf](https://era.nih.gov/files/eRA_Commons_Roles.pdf))

### Behavioral Wellness

Please also see the GPB Wellness page at <https://bioscience.ucla.edu/student-wellness-reporting-resources/>.

All GPB students are eligible for Behavioral Wellness Center (BWC) services. BWC offers twice the number of follow-up therapy sessions as Counseling and Psychological Services (CAPS). Appointments can be made by phone or through the website. Walk-ins are available for crisis situations. Calling ahead helps.

If you contact Karen Miotto or Anna Miller, let them know you are part of GPB.

Location: CHS 18-212, 2318

Phone: (310) 825-9605

[BWC@mednet.ucla.edu](mailto:BWC@mednet.ucla.edu)

<https://medschool.ucla.edu/bwc>

Dr. Karen Miotto, Director

Cell: (310) 658-0081

Email: [kmiotto@mednet.ucla.edu](mailto:kmiotto@mednet.ucla.edu)

Anna Miller, LCSW and Clinical Coordinator

Phone: (310) 825-9270 x59270

Email: [almiller@mednet.ucla.edu](mailto:almiller@mednet.ucla.edu)

CONTACTS	
<b>Department of Human Genetics</b> <b>Lorraine Hartman</b> Student Affairs Officer 6506 Gonda (310) 206-0920 <a href="mailto:LSHartman@mednet.ucla.edu">LSHartman@mednet.ucla.edu</a>	⇒ <b>When in doubt, see your Student Affairs Officer!</b> ⇒ Administrative actions in conjunction with the Graduate Division ⇒ Academic progress, including course enrollments, laboratory rotations, doctoral committees, written and oral examinations, advancement to candidacy, and dissertation defenses ⇒ Financial support, including fellowships, grants, TAs, and GSR appointments
<b>Jerome Keh</b> Academic Personnel and HR Coordinator 6506 Gonda (310) 206-0920 <a href="mailto:jkeh@mednet.ucla.edu">jkeh@mednet.ucla.edu</a>	⇒ Administrative support
<b>Jennifer Mayemura</b> Administrative Specialist and Events Coordinator 6506 Gonda (747) 444-2928 <a href="mailto:jmayemura@mednet.ucla.edu">jmayemura@mednet.ucla.edu</a>	⇒ Administrative support ⇒ Events coordinator
<b>Dr. Paivi Pajukanta</b> Director, Genetics and Genomics Home Area Vice Chair, Department of Human Genetics 6357B Gonda (310) 435-6422 <a href="mailto:ppajukanta@mednet.ucla.edu">ppajukanta@mednet.ucla.edu</a>	⇒ Home Area and curriculum related questions ⇒ Rotation related questions ⇒ Academic advising ⇒ Conflict resolution
<b>Dr. Leonid Kruglyak</b> Chair, Department of Human Genetics 6506A Gonda (310) 825-5486 <a href="mailto:lkruglyak@mednet.ucla.edu">lkruglyak@mednet.ucla.edu</a>	⇒ Academic guidance

### Graduate Programs in Bioscience (GPB) Leadership

**\*Please contact Lorraine prior to contacting personnel below**

<b>Dr. Alex Bui</b> Senior Associate Dean for Bioscience Graduate and Postdoctoral Affairs, DGSOM Director, Graduate Programs in Bioscience <a href="mailto:BuiA@mii.ucla.edu">BuiA@mii.ucla.edu</a>	⇒ General academic advising ⇒ Conflict resolution ⇒ Any sensitive issues that do not have another appropriate point of contact
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<b>Stacie McKinney</b> Program Coordinator, Graduate Programs in Bioscience <a href="mailto:smckinney@mednet.ucla.edu">smckinney@mednet.ucla.edu</a>	⇒ GPB-wide orientation ⇒ Student Advisory Committee ⇒ Graduate applications and admissions ⇒ General GPB questions ⇒ GPB website ⇒ GPB-wide events and event calendar ⇒ GPB student mailing list ⇒ GPB Facebook, Headlines blog ⇒ General outreach, marketing, recruitment
<b>Dr. Diana Azurdia</b> Director of Recruitment and Inclusion for Bioscience Research Training, Graduate Programs in Bioscience <a href="mailto:dazurdia@mednet.ucla.edu">dazurdia@mednet.ucla.edu</a>	⇒ All issues related to inclusion and diversity ⇒ Mentor training ⇒ Student groups (e.g., SACNAS, AMEBA, Black Student in Bioscience, SEDS)

### Information Technology

<b>IT Help Requests</b> <a href="https://it.uclahealth.org/about/dgit/dgit-support">https://it.uclahealth.org/about/dgit/dgit-support</a>	⇒ Computing support ⇒ Troubleshooting ⇒ Bioinformatics labs
<b>Room Reservations</b> <a href="https://www.gonda.ucla.edu/rooms/humgen.php">https://www.gonda.ucla.edu/rooms/humgen.php</a>	