

*Department of Genetics
Graduate Student Manual*

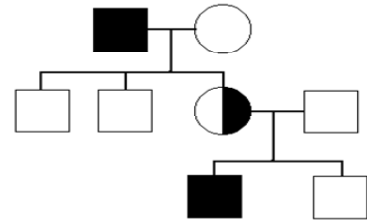


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I. Departmental administration

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II. Departmental Faculty

Primary appointment in Genetics

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* denotes Full/Associate Membership in the Graduate School

A. Goals

The goal of the graduate program in genetics is to provide the student with the skills and expertise necessary for a successful research career through course work, seminars, and laboratory research. Core course work covers a variety of topics in human, molecular and medical genetics, gene therapy and epigenetics and can be designed for the individual needs of each student. Faculty members have a broad range of research interests including identification, characterization, and functional studies of disease genes, gene therapy, genetic epidemiology, and genetic education.

B. Requirements

The Graduate School requires that students maintain a minimum grade point average of 3.0 in all course work; however, a student who receives more than two (2) Cs or one (1) or more Ds or Fs in core courses is automatically dismissed. Any instructor who feels that a student in class will be unable to complete the requirements for a graduate degree in Genetics will notify the Department Head in writing, sending a copy to the student and to the Graduate Student Coordinator. Students seeking exemption from any course must request that exemption in writing. The faculty evaluates the request, together with the student's records. As a matter of Departmental policy, exemptions are strongly discouraged.

Students are required to meet with the Graduate Student Coordinator well before registration to discuss course work for the next semester. At the end of each semester, students are evaluated by the faculty with regard to progress and performance. Unsatisfactory performance or unethical behavior, as determined by the faculty, can be grounds for probation or dismissal.

C. Registration

The students will register for classes each semester by filling out a Schedule of Courses

form that they receive from the School of Graduate Studies. Once the planned coursework is approved by the graduate student coordinator, the graduate student coordinator or the Major Professor will forward the approved form to the School of Graduate Studies (currently Jack D. Hines III at jhines@lsuhsc.edu). If the Major Professor forwards the registration to the School of Graduate Studies, the student must notify the graduate student coordinator about the status of his/her registration and forward a copy of the form to the coordinator within the registration deadline. Failure to do so may not guarantee the tuition waiver and receipt of stipend from the department. A minimum of nine credit hours is required in the fall and spring semesters and six credit hours in the summer semester to be considered as a full-time student.

D. Graduate Student Stipends

Depending on the availability of funds, the Genetics Department awards tuition payment and/or assistantships to a limited number of students. Students who accept assistantships agree to work in the Department for twenty (20) hours per week. Continuation of an assistantship depends on satisfactory academic and work progress.

If at any time a student with an assistantship has a cumulative GPA of less than 3.0, the student's Advisor will be notified. If the student does not bring his/her GPA up to 3.0 after the next semester, the Department Head will notify the student in writing that he/she will lose the assistantship if the cumulative GPA is not at least 3.0 within one semester.

E. Graduate Student Leave Guidelines

The Department's graduate student leave provisions are in alignment with those of the Graduate School, and are universally applied to all Genetics' graduate students, even if they are not financially supported through the Department or University.

When applicable, the Department will utilize the Ruth L. Kirschstein National Research Service Awards (NRSA) leave policy as a guideline for student leave. Those guidelines can be found at the link below:

http://grants.nih.gov/grants/policy/nihgps_2003/NIHGPS_Part10.htm#_Toc54600187

However, it is recognized that Graduate Students/Assistants do not accrue vacation or sick leave. Therefore, this document serves as an advisory for students requesting a leave of absence from the laboratory.

Any students wishing to take up to one week absence from laboratory work, coursework or other school duties must get prior approval from their advisor and the Graduate Program Director (Graduate Student Coordinator). In the absence of a permanent advisor, the Graduate Program Director should be consulted. With prior approval, stipend payments will be unaffected. Students who do not seek prior approval will be removed from the payroll for a duration equivalent to their absence.

Any students wishing to take more than one week off must adhere to the same guidelines as stated above; however, continuation of stipend payments will be reviewed on a case by case basis depending on the length and reason for the absence.

It is essential for students to discuss any planned absence with their supervisor well in advance, so that the timing of leave can be coordinated with the work requirements of their area.

F. Miscellaneous Regulations

- The Department has an orientation meeting for incoming students each August. All students are expected to attend.
- Full-time students are assigned a desk and a mailbox in the Student Room for their first two (2) years.
- Students are expected to meet honorable and ethical standards during examinations and while preparing out-of-class assignments. Failure to do so may be grounds for dismissal.
- Drop/Add and late registration charges are normally the responsibility of the student, but this rule may be waived in exceptional cases.

G. Course Requirements: Doctor of Philosophy Degree- Program

Minimum requirements for the Doctor of Philosophy degree in Genetics are 60 credit hours (including graduate course work, laboratory rotations, seminars and research) as outlined below:

Courses	Credit Hours
Core	30
Elective	11
Seminar (Genet 299)	4
Dissertation Research (Genet 400)	15
Total	60

At least third (30) hours of total courses must be with a letter grade. The core requirements include 23-25 of these hours. Electives must provide the other 5-7 hours. The student selects electives with the advice and approval of the Graduate Coordinator and the mentor.

Core Courses	Credit Hours
Human Molecular Genetics (Genet 231)	3
Introduction to Biostatistics (Bios 6221)	3
Biochemistry (Inter 111)	4
Cell Biology (Inter 121)	3
Molecular Biology (Inter 122)	2
Control of Gene Expression (Inter 123)	2
Cell Signaling and Cell Cycle Control (Inter 124)	3
Ethics in the Biomedical Sciences (Inter 220)	1
Responsible Conduct in Research (Inter 260)	1
Proposal Writing (Genet 247)	2
Laboratory Methods in Molecular Genetics (Genet 253)	3
Medical Genetics Clinic (Genet 271)	3

Electives	Credit Hours
Epigenetics (Genet 234)	3
Genetic Epidemiology and Population Genetics (Genet 236)	3
Special Topics in Human Genetics (Genet 291)	2-3
Cytogenetics (Genet 292)	3
Molecular Medicine in Disease (Genet 246)	3
Practical Bioinformatics (Genet 256)	3

Seminar (Genet 299)

PhD students are required to present three (3) Seminars in addition to their Dissertation Defense. Students must attend all Seminars sponsored by the Department of Genetics. In addition, students are required to attend at least one seminar per week sponsored by other departments or institutions. After three (3) absences from Seminar, the Department Head will ask the student for an explanation.

Dissertation Research (Genet 400)

The Dissertation research must be a contribution of new knowledge in the field of Genetics and be eligible for publication in a major peer-reviewed journal. The student is expected to have at least one first author manuscript submitted for publication before the dissertation defense.

H. Doctor of Philosophy Degree

Students are accepted in the Department of Genetics either with a direct admission to the department or through the Interdisciplinary Program. Students joining the Genetics department from the Interdisciplinary program are required to fulfill the course requirements beginning in the second year (please see page 6 for list of courses).

Advisors & Committees

Students are required to complete a minimum of two (2) laboratory rotations (Genet 253) beginning the second semester of their first year with the option of performing a subsequent third rotation. The laboratory rotation familiarizes the student with faculty research and aids the student in the selection of an Advisor.

The student may elect to perform a rotation in any lab in the Department of Genetics or in the lab of a conjoint faculty member. Conjoint faculty have a primary appointment in a different department but actively contribute to programs within the Department of Genetics.

Before or during the last semester of the first year of course work the student chooses an Advisor. The Advisor may be any faculty member in the Department with primary or conjoint appointment that has full/associate membership in the status in the graduate school (http://graduatestudies.lsuhsu.edu/Faculty_Mem

[bership.htm](#)) and who is willing to direct the student's Doctoral Dissertation work. The Advisor helps the student select additional members for his or her Dissertation Committee. Committees for PhD candidates consist of five (5) faculty. The Chairman of this Committee is normally the Dissertation Advisor. In the unusual case that the advisor is not the Chair, the Chair of the committee must also have a primary or conjoint appointment in the Department of Genetics and must be a full /associate member of the Graduate School Faculty. Every Committee must have at least one (1) person from another department. Committee members may be full, associate or affiliate members of the graduate school. The membership of all Committees must be approved by the Head of the Department and by the Dean of the School of Graduate Studies at the time of the Preliminary Examination.

The student is responsible for filing all forms required by the Department and the Graduate School at the proper time. Students will meet with their committee on a regular basis (usually every six to twelve months) to monitor the progress of the dissertation work.

Written Qualifying Examination

Genetics students must take the departmental Doctoral Degree Qualifying Examination, which requires the writing and revising of a grant proposal following the NIH format. This Exam is offered annually, usually in May. Mentors and

examinees will receive e-mail notification 30 days before the qualifying examination concerning the test schedule. Subsequently the students and mentors will be reminded about the deadline and time commitment of the examinees 15 days before the deadline. In certain circumstances, a student who does not meet the criteria for qualification in the PhD program will be allowed to remain in the Master's program.

Preliminary Examination (Prospectus)

Within six months to a year of satisfactory completion of the qualifying exam, the student's committee must be selected and approved by the Department Head and the first meeting with the Committee must occur. The first meeting with the committee will serve as the institutional preliminary examination.

At least two (2) weeks prior to the Examination date, the Request for Preliminary Examination must be submitted to the Graduate School office. This document formally names the student's Committee and sets the date of the Preliminary Examination (Prospectus Defense). The Prospectus should have the following sections (12 point font and double-spaced):

1. Specific Aims (What do you intend to do?) 1-2 pages
2. Background and Significance (Why the work is important, including a comprehensive literature review of the research topic.) 20-25 pages
3. Preliminary Studies (What has been done to date?) 3-4 pages
4. Research Design and Methods (How are you going to do the work?) 3-4 pages

At least one week before the Preliminary Examination, the student presents a finalized Dissertation Prospectus to the members of the Dissertation Committee. On the scheduled date,

the Committee examines the student orally on both the content of the Prospectus and the content of the core courses. The Committee decides whether the student should proceed with the Dissertation research and communicates its decision to the student, the Department Head and the School of Graduate Studies. The Report on the Preliminary Examination must be signed by all Committee members and sent to the Graduate School.

Final Examination

After the student has rectified all deficiencies and has completed the Dissertation project, and at least one (1) month prior to the Final Examination date, the student must provide all members of the Committee with a finalized version of their Dissertation. At least two (2) calendar weeks before the Examination, a Request for Dissertation/Thesis Defense must be sent to the Graduate School to set the date for the Final Examination.

Each student presents their Dissertation project to the Department at a regularly scheduled Seminar. Following the public presentation, the dissertation Committee examines the student orally on the scope and content of the Dissertation work. The Committee determines whether the student has passed the Final Examination and communicates its decision to the student, the Department Head, and the School of Graduate Studies.

The Final Examination Report must be signed by all Committee members and then submitted with the Dissertation to the Graduate School. A bound copy of the final Dissertation should be provided to the Department and to each Committee member. There must be at least three (3) semesters between the Preliminary Exam and the Final Exam.

I. Course Requirements: Master of Science Degree- Program

Under special circumstances determined by the Department Head, students enrolled for the Doctoral program may be awarded a Master of Science Degree. Requirements for the Master of Science degree are thirty (30) hours of graduate course work, as listed below:

Subject Area	Required Credit Hours
Core Courses**	14
Electives	8
Seminar (Genet 299)	2
Thesis Research (Genet 400)	6
Total	30

Course work must include six (8) hours of electives. The student selects electives with the advice and approval of the Graduate Coordinator and the mentor. In addition to course work, the students must write a Thesis and attend all Seminars.

**Core Courses - Subset of those required for PhD	Credit Hours
Introduction to Biostatistics (Bios 6221)	3
Human Molecular Genetics (Genet 231)	3
Laboratory Methods in Molecular Genetics (Genet 253)	3
Cell Biology (Inter 121)	3
Ethics in the Biomedical Sciences (Inter 220)	1
Responsible Conduct in Research (Inter 260)	1

J. Master of Science Degree

Advisors & Committees

The Advisor helps the student select additional members for his or her examining Committee. Committees for MS candidates consist of three (3) persons. The Chairman of this Committee is, normally the Thesis Advisor. In the unusual case that the advisor is not the Chair, the Chair of the committee must also have a primary or conjoint appointment in the Department of Genetics and must be a full member/associate member of the Graduate School Faculty. Every Committee must have at least one (1) person from another department. The membership of all Committees must be approved by the Head of the Department and by the Dean of the School of Graduate Studies.

Candidacy and Thesis Defense

After the student and Advisor have determined the Thesis topic and all members of the proposed Thesis Committee have agreed to serve, a committee meeting is held to discuss the thesis research and time line.

At least two (2) weeks prior to the Defense date, the student must submit a Request for Dissertation/Thesis Defense to the Graduate School, and provide the Committee with a copy of the Thesis. The student presents the thesis work to the Department at a regularly scheduled Seminar.

Following the public presentation, the student is examined orally by the Thesis Committee on the

scope and content of the Thesis work. The Committee determines whether the student has passed the Final Examination and communicates its decision to the student, the Department Head, and the School of Graduate Studies. The Final Examination Report must be signed by all Committee members and submitted with the student's Thesis to the Graduate School.

K. Additional Information

- Submission of a TB testing report is mandatory for each graduate student in the fall semester every year
- Guidelines for formatting and writing the dissertation
<http://graduatestudies.lsuhschool.edu/DissertationGuidelines.pdf>
- Forms for School of Graduate Studies:
<http://graduatestudies.lsuhschool.edu/forms.htm>
- Before making any travel arrangements for study related travel, administration staff (i.e., business manager, assistant business manager, coordinator, etc.) within your department must be consulted. For more information:
<http://www.medschool.lsuhschool.edu/genetics/docs/Travel.docx>
- Emergency response policy & procedures
<http://www.medschool.lsuhschool.edu/genetics>

L. Research Interests of Faculty Members

Primary appointment in Genetics

Jay K. Kolls MD, Chair

- Investigate mechanisms of the lung host defenses in normal and immunocompromised hosts.
- Investigate how IL-23 and IL-17 regulate neutrophil recruitment in response to infectious stimuli in the lung.
- Study Cellular sources of IL-17A, IL-17F, and IL-22 in lung as well as their signaling in response to pulmonary infection.
- Long-standing interest in determining if Th 17 cells and their cytokine products contribute to airway destruction in cystic fibrosis.
- Long-standing interest in understanding cytokine biology in the lung through over-expression or dominant negative inhibitor strategies using somatic gene transfer.
- Identified that sub-populations of CD8+ T-cells polarized in vivo via cytokine gene transfer have effector activity against *P. carinii*.
- Gene Expression profiling and proteomics to define this effector activity.
- Program developing CD4-independent vaccination against AIDS-related opportunistic infections.

Edward Grabczyk, PhD, Associate Professor

- Genetic disorders caused by unstable repetitive DNA ("dynamic mutations")
- Interactions between DNA structure, transcription, and replication that elicit repeat expansion diseases such as Friedreich's ataxia

Paula Gregory, PhD, Associate Professor

- Research in genetics education for teachers, students, the public, and health care professionals
- Psychological barriers to understanding genetics information and the impact of predictive genetic testing on family dynamics

Andrew D. Hollenbach, PhD, Assistant Professor

- Post-translational regulation of transcription factors
- Biochemical mechanisms of chromosomal translocation gene products in cancer formation
- Identification of genetic regulatory elements

Tomoo Iwakuma, MD, PhD, Assistant Professor

- Protein function in p53 pathway
- Generation and analyses of genetically engineered mice related to tumor development

Wanquo Liu, PhD, Associate Professor

- Genetics and biological roles of Wnt signaling in GI tumor development
- Genetics and functional analysis of DNA damage-response defects in prostate cancer susceptibility

Diptasri Mandal, PhD, Associate Professor

- Genetic linkage and segregation analysis of complex disorders, in particular humans cancers
- Investigation of properties of statistical genetic analysis methods through computer simulation

Doan Nguyen, PhD, Instructor

- Bioinformatics
- DNA microarray
- Aging and dry eye

Udai Pandey, PhD, Assistant Professor

- Molecular pathogenesis of human neurodegenerative diseases particularly polyglutamine expansion diseases
- Protein degradation pathways in neurodegeneration

Derek Pociask, PhD, Research Assistant Professor

- Molecular basis of fibrotic lung disease, epithelial repair

Fern Tsien, PhD, Instructor

- Chromosome instability in cancer
- Genetics education, especially in the fields of Cytogenetics and Epigenetics
- Correlation between DNA methylation with constitutive heterochromatin and gene silencing
- Genetics of the Acadian population

Mingquan Zheng, MD, Research Assistant Professor

- Molecular adjuvants that mediate CD4 independent vaccination against *Pneumocystis carinii* and Influenza

Conjoint Faculty

Yan Cui, PhD, Associate Professor

- Cancer Immunotherapy
- Gene Therapy

Michael S. Lan, PhD, Professor

- Transcription factors in neuroendocrine differentiation
- Transcriptional regulation of insulin gene expression
- Pancreatic islet cell growth and differentiation
- Neuroendocrine cancer gene therapy

Donald E. Mercante, PhD, Professor

- Experimental design
- Correlated data methods

- Analysis of genetic data
- Clinical trials

Donna Neumann, PhD, Assistant Research Professor of Ophthalmology

- Epigenetic Modifications Regulating Ocular HSV-1 Latency and Reactivation

Augusto Ochoa, MD, Professor

- T-cell function, cytokine production, macrophage T-cell interaction, immune regulation, immune dysfunction and disease, as well as tumor immunology.

Alistair J. Ramsay, PhD Professor

- HIV/AIDS
- Immunology of TB infection, immunology of vaccination, development of novel strategies for vaccination, particularly at mucosal surfaces.

W. Douglas Scheer, PhD, Professor

- Clinical chemistry
- Molecular pathology
- Dyslipidemias and the complications of Type II Diabetes, Atherosclerosis, inherited factors affecting Laboratory support for Emergency Medicine

Guoshun Wang, D.V.M., PhD, Associate Professor

- Phagocytic Innate Immunity
- Cystic Fibrosis
- Gene Therapy and Stem Cells

Oliver Wesseley, PhD, Assistant Professor

- The molecular mechanisms of kidney development in *Xenopus* and mouse