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PROGRAM OVERVIEW

• **Courses**
  • The Department requires that each student pass at least five graduate level semester courses.
  • The Graduate School requires doctoral students to achieve a minimum grade average of *High Pass* and to meet an Honors requirement in each of the first two years of study
  • All second-year students in the Genetics Department are required to take *Gene 675 Graduate Student Seminar (GSS)*.
  • All genetic students are strongly encouraged to attend Journal club and RIP throughout their PhD. This is an integral part of their education (minimum 70% of presentations, this will provide eligibility for the best RIP talk)

• **Career Development Plan**
  Students are encouraged to think about their career goals, how these goals can be achieved during your PhD and how you can work with your mentor, DGS and graduate program to align expectations and meet these goals. It is recommended that students use (myIDP [http://myidp.sciencecareers.org/](http://myidp.sciencecareers.org/)) as the main tool to design and follow their individual development plan. Students are encouraged to discuss this plan with their mentor every 6 months. Students should discuss this plan during every thesis committee meeting. Please provide your individual career development plan form to your committee 3-7 days before your meeting, discuss it as an integral part of your thesis committee meeting and bring to DGS after thesis meeting for feedback. You are encouraged to use bullet points.

• **Qualifying Exam**
  It is taken during the fall semester of a student's second year at Yale (By December 15th). Students must have completed all course requirements (except Gene 675 and Journal club, RIP) and selected a thesis advisor before taking the qualifying examination

• **Teaching**
  Ph.D. students are expected to participate in two semesters (or its equivalent) of teaching. Students are not expected to teach during their first year or during their qualifying exam. Students must complete their teaching by the end of their fourth year.

• **Thesis Committee Meetings**
  The thesis committee must meet for the first time no later than May 15th of the spring term of the second year.
  Evaluation forms must be completed at the end of each thesis meeting and brought in person by student to the DGS for discussion and his signature during Open office hours. 2nd and 3rd year students are required to have at least 1 meeting per academic year;
4th, 5th and 6th year students are required to have 2 per year.

- **Research-in-Progress (RIP) and Journal Club**
  
  With the goals of broadening your education, all students are required to attend at least 70% of the RIP and Journal clubs presented by the faculty. Beginning in their second year, all Genetic Students are required to present their research once a year at *Graduate Student Research-in-Progress*, held weekly on Tuesday mornings during the second-half of the spring term. Students who are in their 6th year and plan to submit their thesis do not need to present at RIP.

- **First Author Manuscript Requirement**
  
  Learning how to prepare and publish a paper is an integral part of the education. It is expected that the research of the thesis will be published in at least one peer reviewed manuscript before obtaining permission to graduate.

- **Dissertation Prospectus**
  
  By January 15th of the third year at Yale, each student must prepare a written summary of the proposed nature and scope of the dissertation research, together with a provisional title for the dissertation.

- **Dissertation Progress Report**
  
  This requirement is for students in their 4th, 5th, and 6th year. Must be completed by May 15th. This report is now completed on-line at the following web site: [http://www.yale.edu/sis/dpr/](http://www.yale.edu/sis/dpr/).

- **Thesis**
  
  Typical time of dissertation is 4 to 6 years, and it is expected that most students will submit their thesis by the end of year 5.

- **Forms**
  
  Committee Meeting, Qualifying Exam and IDP forms can be found at the following website: [http://www.yale.edu/giraldezlab/Yale_Genetics_Graduate_Program.html](http://www.yale.edu/giraldezlab/Yale_Genetics_Graduate_Program.html)

- **RCR**
  
  All fourth year students are required to take a refresher course in Responsible Conduct of Research. Information regarding when this course will be offered will be sent out during the year by the Genetics registrar.
<table>
<thead>
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<th>Year</th>
<th>Requirement</th>
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<td>1</td>
<td>Course Work in Accordance with MCGD Track Requirements (including GENE 900a and GENE 901b First Year Introduction to Research, Laboratory rotations -GENE 911, 912 and 913, rotation talks, ethics, grant writing, methods in MCGD) Choose Thesis Advisor and Department Honors Requirement is expected to be met by the end of the first year Begin thesis research: It is expected that preliminary data for the qualifying exam will be gathered during the summer and fall (year 2) Attending Journal Club, RIP, Genetics Seminars</td>
</tr>
<tr>
<td>2</td>
<td>Thesis Research Course Work (including Graduate Student Seminar) Research in Progress (RIP) presentations at the end of spring term Qualifying Examination (<em>fall term</em>) Thesis Committee Meeting (<em>first meeting must occur before May 15th</em>) Thesis Research Proposal (prepared for 1st thesis committee meeting) Attend Journal Club, RIP and Genetic Seminars</td>
</tr>
<tr>
<td>3</td>
<td>Thesis Research Teaching Requirement Thesis Prospectus (<em>January 15th</em>) Research-in-Progress (RIP) Presentation (<em>spring term</em>) Thesis Committee Meeting (second meeting must occur before May 15th) Admission to Candidacy Attend Journal Club, RIP and Genetic Seminar</td>
</tr>
<tr>
<td>4, 5</td>
<td>Thesis Research Teaching Requirement is must be completed before the 5th Year Thesis Committee meeting- every 6 months Research-in-Progress (RIP) presentation Annual Dissertation Progress Report Attend Journal Club, RIP and Genetics Seminar RCR Refresher Course</td>
</tr>
<tr>
<td>6</td>
<td>Complete Thesis Research Final Thesis Committee Meeting to obtain approval of thesis committee to write thesis Petition for PhD Degree and submit final thesis to the Graduate School Present Thesis Seminar</td>
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MD/PhD students affiliate with the Department of Genetics Graduate Program via a different route than other incoming graduate students in the Department, resulting in some modification of the academic requirements for the PhD portion of the MD/PhD degree. Typically, one or more research rotations are done during the first two years of medical school (in many cases, the first rotation is done during the summer between years one and two). No set number of research rotations is required. MD/PhD students officially affiliate with the Department of Genetics after selecting a thesis advisor and consulting with the DGS. MD/PhD students interested in Genetics are required to consult with the DGS prior to formal affiliation to determine an appropriate set of courses tailored to the student’s background and interests.

The courses, rotations, and teaching requirements for MD/PhD students entering the Genetics Graduate Program (see below) are modified from the normal requirements for PhD students. Besides the modifications in these three requirements, MD/PhD students in the Department of Genetics are subject to all of the same requirements as the other graduate students in the department.

**Coursework**
Four graduate level courses taken for a grade are required (two Yale graduate level courses taken for a grade during Medical School may be counted towards this requirement at the discretion of the DGS). Coursework is aimed at providing a firm basis in genetics and in cellular molecular mechanisms, with graduate-level proficiency in genetics, cell biology and biochemistry. In addition to these four courses, all Genetics students are required to take two semesters of Graduate Student Seminar and Scientific Ethics.

**Required Courses**
Basic Concepts of Genetic Analysis (GENE 625a)
Graduate Student Seminar (2 semesters; GENE 675, graded Sat/Unsat)
Scientific Ethics (as part of GENE 901b, graded Sat/Unsat)

**Highly Recommended Courses**
Genomic Methods for Genetic Analysis (GENE 760b)

**Recommended Courses**
Mechanisms of Development (GENE 777b)
Stem Cells: Biology and Application (GENE 655a)
Principles of Human Genetics (GENE 500b)

Advanced Eukaryotic Molecular Biology (MB&B 743b)
Biochemical and Biophysical Approaches in Molecular and Cellular Biology (MCDB 630b)
Molecular and Cellular Basis of Human Disease (CBIO 601)

**Electives**
Other courses may be taken in a wide variety of fields relevant to the biological and biomedical sciences.

**Laboratory Rotations**
One or more rotations are necessary to identify a thesis advisor. No set number of research rotations is required.

**Teaching**
One semester of teaching is required. Previous teaching while enrolled at Yale Medical School may count toward this requirement at the discretion of the DGS.

**Qualifying Exam**
MD/PhD students take their qualifying exam in the semester following the completion of their coursework. The structure of the qualifying exam is identical to that for other Genetics PhD students. Students read with three faculty members for five weeks, one of whom supervises the reading on the thesis research
topic, but who is not the thesis advisor. The following two weeks are devoted to writing two research proposals, one on their thesis research. An oral exam follows in the eighth week. For details, see the Qualifying Exam section of this handbook.

**Prospectus**

MD/PhD students submit their prospectus once their qualifying exam has been completed, but no later than the 15th of May following their exam.

**Candidacy**

MD/PhD students will be admitted to candidacy once they have completed their coursework, obtained 2 Honors grades, passed their qualifying exam, and submitted their dissertation prospectus.

**Thesis Committee**

All students are required to have two thesis committee per year, beginning the semester after passing their qualifying exam. Students are strongly encouraged to consider having additional meetings if they feel their project could benefit from the assistance of members of the thesis committee.
INTEGRATION OF THE MCGD TRACK
WITH THE DEPARTMENT OF GENETICS

The main functions of the Combined Program in the Biological and Biomedical Sciences (BBS) concern recruitment of students, direction of their course of study in their first year at Yale, and assignment to the academic departments for their subsequent course of study including their thesis research.

Applicants apply to one of the seven tracks of the BBS rather than to an individual department or an individual investigator. Applicants to each track are evaluated by an admissions committee made up of faculty affiliated with the track, and they are admitted to the BBS and not to an individual department.

The tracks are designed to be more interdisciplinary and more broadly based than the departments. There are currently seven tracks:

- Biochemistry, Biophysics and Structural Biology
- Computational Biology and Bioinformatics
- Immunology
- Microbiology
- Molecular Cell Biology, Genetics and Development (MCGD)
- Molecular Medicine, Pharmacology and Physiology
- Neuroscience

The Department of Genetics, in conjunction with the Department of Cell Biology and the Department of Molecular, Cell and Developmental Biology (MCDB), helps administer the Molecular Cell Biology, Genetics and Development Track (MCGD) of the BBS. The faculty of the three sponsoring departments share an interest in understanding the molecular basis of life and organismal development through research using genetics, biochemistry, molecular biology and cell biology.

The following is an overview of the MCGD Track; a more extensive description can be found in the MCGD handbook.

Participating Faculty: The track is made up of faculty from the three core departments plus associated faculty from other BBS departments.

Administration:

- Track Co-Directors: Craig Crews, Valerie Reinke
- Registrar: Shirlene Scott
- Admissions: DGA's Valerie Horsley (MCDB), Daniel Colon-Ramos (Cell Biology), Zhaoxia Sun (Genetics)
- Advising: Directors & DGS's: Scott Holley (MCDB), Karin Reinisch (Cell Biology), Antonio Giraldez (Genetics)
First year curriculum:

During the first year, all MCGD students must carry out three research rotations. MCGD students should attend weekly journal clubs and departmental seminars sponsored by at least one of the departments affiliated with the Track. In addition, all MCGD students should attend the departmental annual retreats held in the fall.

Lab Rotations:
September 8 to October 27, 2015
October 28 to December 16, 2015
January 11 to March 4, 2016

Required course:

MCDB/CBIO/GENE 900a (Fall) / 901b (Spring): First Year Introduction to Research. This course consists of student presentations of their work during their three laboratory rotations (rotation talks) and a weekly seminar that covers ethics, grant writing and research methods in cellular and molecular biology.

Core courses:

GENE/MMB/MCDB 625a (Fall) Basic Concepts of Genetic Analysis
GENE/CBIO/MCDB 911 First Laboratory Rotation
CBIO 602a (Fall) Molecular Cell Biology
MCDB/MMB 630b (Spring) Biochemical & Biophysical Approaches in Molecular and Cellular Biology
GENE/CBIO/MCDB 912 Second Laboratory Rotation
GENE/CBIO/MCDB 913 Third Laboratory Rotation

Students with a strong interest in this department interested in core areas of genomics, stem cell biology, developmental biology or human genetics are encouraged to consider courses such as:

GENE 777 Mechanisms of Development
GENE 760 Genomic Methods for Genetic Analysis
GENE 655 Stem Cells: Biology and Application

At the end of the first year, each MCGD student declares a laboratory for thesis research. MCGD students generally join the department of his or her thesis advisor and are subject to the policies and requirements of that department. Students whose faculty mentor has a primary or secondary appointment in Genetics will be able to join the Genetics Department. Students whose faculty mentor is not directly affiliated with the Genetics Department are encouraged to join their mentor’s primary department. The qualifying examination will be administered by the academic department in the second year. Students who during the year realize their research lab will be with a faculty who is not primary or secondary of genetics, are encouraged to take the courses that are relevant to that discipline of their PhD and consider switching to that track if it better fits their training needs.

The requirements of the Genetics Department are described in detail in this Handbook; the requirements of other departments can be found in the appropriate departmental booklet.
DEPARTMENT OF GENETICS
PROGRAM OF STUDY

The Department of Genetics offers a broadly based program of instruction and research in genetics and molecular biology leading to the Ph.D. degree, preparing its graduates for independent careers in research and teaching. The central component of the graduate program is the successful completion of original dissertation research and the preparation of a written dissertation under the direct supervision of a member of the faculty. Prior to undertaking full-time dissertation research, each student must successfully complete five graduate level courses, pass the departmental Qualifying Examination, and fulfill a number of additional requirements. Throughout a student's stay at Yale, he or she is expected to participate in departmental activities. Most students require five to six years to complete the program.

This Handbook, together with the Yale University Graduate School of Arts and Sciences Programs and Policies 2015-2016 booklet (http://www.yale.edu/graduateschool/policies) are the sources of information on the requirements in Genetics. The student is responsible for knowing the requirements and for meeting them in a timely manner.

A. Course Work

1. Formal Graduate Level Courses

Because students enter the MCGD track with widely varying backgrounds and interests, each student's program of courses is designed individually in consultation with the DGS and must be approved by the DGS, who may require a student to take a specific course to correct a deficiency. The Department requires that each student pass at least five graduate level semester courses, and the DGS may require additional courses for individual students. Course grades in the Graduate School are recorded as Honors, High Pass, Pass, and Fail. The Graduate School requires doctoral students to achieve a minimum grade average of High Pass and to meet an Honors requirement in each of the first two years of study. Typically, our students take 2 or 3 courses each semester for their first two semesters. It is expected that all the courses except Graduate Student Seminar (GENE 675) will be completed by the end of the first year. Research and some seminar courses are graded as Satisfactory or Unsatisfactory and cannot be used to fulfill either the five-course or the honors requirement. For example, First Year Introduction to Research (GENE 900a and GENE 901b), Laboratory Rotations (GENE 911, 912 and 913) and Graduate Student Seminar (GENE 675) may not be used to fulfill the five-course or Honors requirements. In addition, students must satisfy a departmental breadth requirement by demonstrating basic knowledge of genetics in at least three of four broad areas: molecular, cellular, organismal, and population genetics. Normally this requirement will be met by satisfactory completion of courses, many of which cover more than one of these areas. It is expected that course requirements be completed by the end of the second term, so that students will be able to take the Qualifying Examination during the third term.

2. Journal Club and Research-in-Progress

Departmental Journal Club meets Tuesday mornings from 9:30 to 10:30 a.m. in the Brady Auditorium-Room B131. Members of the faculty and research staff present new and exciting papers from the literature.

During the spring semester, the graduate students conduct a Research-in-Progress series in which two students talk about their research. This is held on Tuesday mornings in the Genetics Seminar Room (SHM I-304). Students are expected to attend more than 70% of the Journal Club and Research-in-Progress and are strongly encouraged to participate in the discussion. Students who participate in 70% of these seminars are eligible for the best RIP talk prize.

3. Research Conduct

All students are required to take a course on scientific ethics in their first year (i.e., Gene 901b First Year Introduction to Research). This course does not count towards the five course or Honors requirement,
and it is graded on a satisfactory/unsatisfactory basis. Students must sign in to receive credit for this training; more than one absence results in a grade of unsatisfactory. **Students are now required to take a refresher course in their 4th or 5th year which will consist of 6 hours of RCR retraining. This course does not count towards the five course or Honors requirement and is not graded.**

4. Graduate Student Seminar

All second-year students in the Genetics Department are required to take *Gene 675 Graduate Student Seminar* (GSS). In this seminar course, each student prepares and delivers a seminar based on the literature and discussions presentations by other students. See Appendix 2 for **Guidelines for Graduate Student Seminar Presentation**. Each semester, the seminar course is led by different faculty members, and the topics chosen reflect the breadth of interest in genetics within the department and elsewhere at Yale. This course does not count toward the five course or Honors requirement, and is graded on a satisfactory/unsatisfactory basis.

B. Laboratory Rotations

The primary purpose of the research rotations is to identify a laboratory in which dissertation research will be carried out, so rotations should be performed in laboratories that are being considered as possible homes. Students must consider:
- Level of excitement about the science of the lab
- Level of supervision they require and what type of mentor they are looking for.
- Amount of contact expected with the supervisor
- Environment of the laboratory, colleagues, interaction, funding.
- Expectations of the mentor, and the student for the PhD.
- Accomplishments of other students in that laboratory and overall happiness of the lab members

Rotations allow the student to find out what particular laboratories and faculty members are like, and give the faculty a chance to assess the student’s motivation, work ethic, commitment and how well a particular student fits into the laboratory. Rotations also serve to introduce students to a variety of techniques and scientific approaches. Therefore, the three-rotation requirement will not be waived merely because a student has already made a final decision concerning a dissertation laboratory.

If a student realizes early on that the chosen laboratory for a rotation is not a good fit, s/he is encouraged to communicate immediately with the faculty mentor and the DGS to identify the most appropriate course of action, which might include switching rotation labs. This is preferred rather than going into a fourth rotation to avoid delaying the student's progress through their academic clock.

All students are required to carry out research rotations in at least three separate laboratories in their first year. This exercise is formally listed as *Gene 911 First Laboratory Rotation, Gene 912 Second Laboratory Rotation and Gene 913 Third Laboratory Rotation* and are an MCGD Track requirement. Each rotation typically lasts about 7 weeks, during which time the student is expected to actively participate on a daily basis in a research project under the direction of a faculty member. This course does not count toward the five course or Honors requirement, and is graded on a satisfactory/unsatisfactory basis.

C. Qualifying Examination

The qualifying examination is administered by the Department of Genetics for all students who have affiliated with the department. It is taken during the fall semester of a student's second year at Yale (September-December 15th), but can be taken during the spring semester with the permission of the DGS. Students must have completed all course requirements and selected a thesis advisor before taking the qualifying examination. In addition, the exam should be scheduled after the student has obtained preliminary results on his or her thesis project. The examination is an opportunity for students to read in depth in areas of interest (including the thesis topic), to gain experience in the formulation and preparation of coherent research proposals, and for the faculty to identify whether areas of weakness exist in a student's knowledge that should be corrected. The qualifying examination is described in detail...
in Appendix 1.

D. Teaching

An important aspect of graduate training in Genetics is the acquisition of teaching skills through participation in courses appropriate for the student’s scientific interests. These opportunities can be drawn from a diverse menu of lecture, laboratory and seminar courses given at the undergraduate, graduate, and medical school level. Ph.D. students are required to participate in two semesters (or its equivalent) of teaching. Students are not expected to teach during their first year or during their qualifying exam. Teaching assignments in fulfillment of the requirement must be approved in advance by the DGS.

Students teaching for the first time are required to participate in a session called Teaching at Yale Day. This event is designed to help new teachers develop the skill and confidence to make an effective start to the semester. The BBS Teaching at Yale Day will be Wednesday, August 31 from 9-1:30 p.m. (location and registration link available at: http://teaching.yale.edu/ or http://teaching.yale.edu/event/teaching-yale-day

In this program, you will:
(1) learn strategies for the first day of class;
(2) learn about important policies and guidelines for teaching in Yale College;
(3) receive guidance from experienced teaching fellows and faculty;
(4) be introduced to teaching resources at Yale; and
(5) have an opportunity to get answers for your questions about teaching.

Another session will be held on Tuesday, January 19th, 2016 for those students who will be teaching in the spring and missed the fall session.

Genetics students wanting to serve as teaching fellows after completion of their teaching requirement must obtain the approval of their thesis advisor and the DGS beforehand.

The Genetics Graduate Program is a full-time commitment and any part-time jobs for pay, including tutoring to Yale College students, requires the approval of the thesis advisor and the DGS.

E. Dissertation Research

The centerpiece of graduate education is the dissertation research and the preparation of the written dissertation.

1. Selection of a Dissertation Advisor

The single most important decision made by a graduate student is the selection of a dissertation advisor and laboratory. Each advisor has a distinctive style and approach to science and to graduate education, and it is important to carefully investigate potential laboratories before committing to that laboratory.

The best way to assess a laboratory and one’s "fit" to it is to carry out a research rotation in that laboratory. Students should talk to the current members of the laboratory:
- Are they happy and productive?
- What is the experience of the faculty member in having students successfully complete a dissertation?
- Would lab members choose the same lab again?
- A student should consider whether he/she wants/needs a big lab with lots of activity or a smaller lab with more day-to-day contact with the advisor. Some students prefer a lab with a high-profile director and potentially more visibility, whereas others thrive with a younger faculty member who is more accessible and who has a more recent memory of graduate student concerns.
- Other useful sources of information are more advanced students, the DGS, and other faculty.
- A student should discuss candidly with a potential advisor his or her goals and interests, and request the advisor to outline realistic potential projects. However, it is important to realize that a student is selecting an advisor and a laboratory, not a project, because several shifts of project
may occur before a workable one is identified.

The DGS must approve the selection of a laboratory. Occasionally an advisor may decide not to admit a student into a laboratory for any of a variety of reasons, such as lack of space, concerns about funding, or the belief that a particular student would fit in better in a different laboratory. Although students and potential thesis advisors are encouraged to discuss possibilities at any time, they are requested not to make a final commitment to each other for thesis research until the end of the last rotation.

On rare occasions, students switch dissertation laboratories after dissertation research has begun. When such a switch is contemplated, this should be discussed with the DGS as soon as possible so that all options can be considered in a timely fashion.

The selection of a lab marks the assignment of a student from a BBS track to an academic department. Many MCGD students join the Department of Genetics. It is expected that students electing to be in the Department of Genetics but who join laboratories headed by faculty without appointments in the department will have a project with strong ties to genetics and are expected to participate fully in the academic life of the department. This includes attendance at journal clubs, research in progress talks, Genetics seminars, and the annual retreat. In addition, all academic requirements such as attendance at graduate student seminar must be met. As for all scientists at Yale, students are also encouraged to attend activities that are relevant to their particular scientific interests and to broaden their scientific knowledge.

2. Thesis Advisory Committee

The thesis advisory committee is an important body that helps each student navigate the shoals of dissertation research. The function of this committee is to periodically review and evaluate progress, provide advice and expertise about the project, certify when a student has completed sufficient work to begin writing the dissertation and provide advice about future career paths and goals. Therefore, the committee should be regarded as an ally and a resource, not an obstacle and students are encouraged to contact members of the committee as needed even in informal settings. On occasion, the thesis committee can help resolve differences between a student and an advisor.

a. Constituting a Thesis Committee

The thesis committee is chaired by a faculty member other than the thesis advisor and normally comprises of three faculty members, at least two of whom must have faculty appointments in the Department of Genetics. Additional members may be added at later times if deemed appropriate. The thesis committee is assembled by the student in consultation with the thesis advisor and approved by the DGS. Faculty who supervised first year research rotations and who served on qualifying examination committees are often appropriate as thesis committee members. Faculty members with expertise in the area of the dissertation research are particularly helpful and should be sought out as thesis committee members.

A student should be cautious about suggesting committee members who are frequently unavailable because their presence on the committee may make it difficult to schedule meetings in a timely fashion. Names, addresses and telephone numbers of committee members should be given to the Genetics Registrar, following approval by the DGS.

b. Thesis Committee Meetings –

The thesis committee must meet for the first time no later than May 15th of the spring term of the second year. The student should canvas the committee members and the advisor for acceptable dates and times and schedule a meeting. Starting in the student’s fourth year, subsequent meetings must be held twice a year (every 6 months). Meetings should be convened more often if the research has run into difficulty or if a change of research direction is contemplated. If a student experiences difficulty in scheduling thesis committee meetings, he or she should inform the DGS immediately rather than delay scheduling the meeting.

Prior to the first meeting of the thesis committee, the student must prepare a 10-page thesis research
proposal in consultation with the advisor and distribute it to committee members (see Appendix 3 for guidelines). This will normally be a revised version of the proposal prepared for the qualifying examination. Prior to subsequent committee meetings, each student should prepare a 2-3 page outline of progress made and of proposed research. This outline should be distributed to the committee members one week before the meeting and should be discussed with the committee during the meeting.

Also students are encouraged to think about their career goals and objectives by developing an individual development plan using the website myIDP (http://myidp.sciencecareers.org/). Furthermore, students should use the career development form (http://www.yale.edu/giraldezlab/Genetics-forms.html) as a guideline to discuss their career goals during with the thesis committee during this meeting.

**Evaluation forms must be completed at the end of the thesis meeting together with the career development form and brought to the DGS for his signature and discussion.** In addition to formal committee meetings, each student should keep in close contact with the individual members of the committee so as to make the best use of their expertise and have informal discussion throughout the year. Students must obtain a rating of “Meets Expectations” or “Outstanding” in all 7 criteria on the thesis committee form in order to be admitted to candidacy or to get approval to write his/her thesis. **Note: a student will not be permitted to register for subsequent terms unless an annual committee meeting is held and the report is submitted to the DGS.**

F. **Research-in-Progress (RIP) Series**

All students are expected to attend RIP as a central part of their broad education during their PhD. Beginning in their third year, all students are required to present their research once a year at Graduate Student Research-in-Progress, held weekly on Tuesday mornings during the spring term. These presentations are intended to give each student practice in presenting his or her own work before a sympathetic but critical audience and to familiarize the faculty and the rest of the department with the research. Students should not feel compelled to present only polished, finished pieces of work, but also to present on-going projects including a discussion of difficulties, because useful suggestions are often made at RIP. Students in their sixth year do not have to present in this series if they will present their thesis seminar in that academic year.

G. **Dissertation Prospectus**

By January 15th of the third year at Yale, each student must prepare a written summary of the proposed nature and scope of the dissertation research, together with a provisional title for the dissertation. This document should be written in clear, plain English with minimal jargon, abbreviations, or colloquialisms. Because the prospectus is required fairly early in a graduate career and because of the uncertainties of research, the content of a thesis may change over time, and a student should not feel bound by what is submitted. The dissertation prospectus for Genetics students is usually an updated and somewhat abbreviated form of the thesis research proposal prepared for the student’s first thesis committee meeting. **(Appendix 7 The Dissertation Prospectus, Suggested Guidelines from the Executive Committee of the Graduate School outlines the components that must be included.)** The prospectus must be signed by the advisor indicating that the prospectus has been approved and then submitted to the DGS. The DGS may require additional changes. Once the DGS has approved the prospectus, it will be submitted to the Graduate School Registrar. **Students will not be admitted to candidacy, nor will they be allowed to register for the third year of study without an approved Prospectus.**

H. **Admission to Candidacy**

After all pre-dissertation requirements are successfully completed (Course requirements, Honors requirement, Qualifying Examination, Dissertation Prospectus), admission to candidacy will be recommended by the first committee meeting in the spring of the second year and then voted upon in the February faculty meeting. **A student who has not been admitted to candidacy will not be permitted to register for the fourth year. Exceptions must be approved in advance by the DGS, the department faculty, and the Graduate School Associate Dean.**
I. Master’s Degrees

**M.Phil.** - The Master of Philosophy degree can be awarded to Ph.D students who have been admitted to candidacy. See the Yale University Graduate School *Programs and Policies* booklet.

**M.S.** - Students are not admitted for this degree but may be awarded this degree if they leave Yale without completing certain requirements for the Ph.D. degree. See the Yale University Graduate School *Programs and Policies* booklet.

J. Evaluation of Progress

Students may view their academic record (unofficial transcript) on-line.

All students are encouraged to have frequent conversations with the DGS, course instructors, and (in later years) the thesis advisor as well as members of the thesis committee. In addition, students will receive a copy of the summary statement of each thesis committee meeting. In this way, students will develop an accurate, ongoing sense of their own progress. The department faculty will formally evaluate the progress of each student at the end of every academic year. The evaluation will be based on performance in courses, laboratory rotations, and the Qualifying Examination. In later years, the advisor and thesis committee will report to the faculty on the student's thesis research progress. If at any point the faculty finds deficiencies in a student's performance, a detailed letter will be sent to the student by the DGS describing those deficiencies and making suggestions to remedy them.

Finally, at the end of the academic year (approx. May 15, 2016) the Graduate School requires a *Dissertation Progress Report* from students in their 4th, 5th, and 6th year. This report is now completed on-line at the following web site: [http://www.yale.edu/sis/dpr/](http://www.yale.edu/sis/dpr/). The DPR needs to be approved by the faculty advisor, and by the Director of Graduate Studies. It is a good idea to type the report into word and copy and paste into the on-line Dissertation Progress Report site to avoid losing the data. The report should include: i) Background and goals of the project (400 words), ii) Outline of the aims, iii) Clear summary of the achievements and publications (bullet points 5-10 points), iv) Clear outline of the goals to be met in the next year and time frame for those goals (5-10 items, 2-3 sentences/item, including time frame) and v) Summary paragraph that highlights achievements in the context of the big picture of the project, and how the outlined time line will help in the progress of this project (200 words).

K. First Author Manuscript Requirement (applicable to students who entered the program in Fall 2013 and after)

The goal of the Genetics graduate program is to provide outstanding training to prepare students for successful careers in science and related areas. Training includes carrying out a research project that adds new knowledge to the biomedical sciences, and culminates in a publishable body of work. Learning how to prepare and publish a paper is an integral part of this education. Thus, each student is expected to have at least one first-author manuscript reporting original thesis research accepted or submitted for publication in a peer-reviewed journal before submitting his or her thesis to Yale Graduate School for the Ph.D. degree. This requirement will be waived for an individual student only with the approval of the student’s advisor, thesis committee, and the faculty of the Department of Genetics.

L. Students are reminded that the policies of the Graduate School must be followed. Any questions regarding these policies should be addressed to your assistant or associate dean.”

The link to the Policies webpage is here: [http://www.yale.edu/printer/bulletin/htmlfiles/grad/index.html](http://www.yale.edu/printer/bulletin/htmlfiles/grad/index.html)  
The link to the actual Programs & Policies handbook is here: [http://gsas.yale.edu/academics/programs-policies](http://gsas.yale.edu/academics/programs-policies)
DEPARTMENTAL ACTIVITIES

In addition to the formal academic requirements outlined in previous sections, students are expected to participate in various departmental activities.

A. Journal Club and Research-in-Progress

Departmental Journal Club meets Tuesday mornings from 9:30 to 10:30 a.m. in the Brady Auditorium-Room B131. Members of the faculty and research staff present new and exciting papers from the literature.

During the spring semester, the graduate students conduct a Research-in-Progress series in which two students talk about their research every Tuesday morning. This is held in the Genetics Seminar Room (SHM I-304). Students are expected to attend Journal Club and Research-in-Progress at least 70% of the time and are strongly encouraged to participate in the discussion. Students who participate in 70% of these events are eligible for the best RIP talk prize.

B. Seminars

Genetics Seminars are held on Tuesday afternoons at 4:00 p.m. in Brady Auditorium preceded by coffee/tea at 3:45 p.m. Geneticists from around the world are invited to describe their research. Students are expected to attend Genetics seminars. Interested students will be invited to meet with seminar speakers for an informal lunch. In addition, students are encouraged to invite and serve as host for two speakers each year.

C. Retreat

Genetic students and first year students interested in the department are required to attend the Genetics retreat even if they are doing their research thesis in another department. The Department Retreat, a weekend program of informal research talks and discussions, is scheduled typically scheduled for the end of October/beginning of November at the Inn at Jiminy Peak, Massachusetts. Faculty, students and fellows attend this function. This Retreat provides an outstanding opportunity to keep up to date with the diverse research underway in the department and to participate in vigorous scientific discussions. Students are expected to attend the Retreat, and are encouraged to present their research in a poster session. The retreat will be held September 11-12. For information about the 2015 Genetics Retreat, contact Neltja Brewster. (Neltja.brewster@yale.edu)

D. Clinical Genetics Conferences

Students and other non-clinical members of the Department are invited to attend the Clinical Genetics Conferences, in which clinical cases recently referred to the Genetics Consultation Service are presented and discussed. This provides exposure to genetic problems as they present in families and individuals. The postdoctoral clinical fellow and the attending physician on service are responsible for the presentations, and other specialists are frequently invited to participate. Although patients presented are not identified by name, the rules of confidentiality of patient-related information (according to standard medical practice) are extended to all those participating in the conferences. The conferences are held on Tuesdays at 10:45 a.m. (after Journal Club) in SHM I-304, and last 1 hour. Topics are generally posted in the Genetics Clinic Office, WWW 305.
RESEARCH EXPENSES

A. Supplies

In general, costs of research supplies and equipment are covered by grants or contracts held by the faculty member in whose laboratory research is carried out.

B. Travel to Scientific Meetings

Attendance at scientific meetings is an important part of graduate education. Limited travel funds are available to students in years 1-3 that are on training grants. Students that are supported by the HGTG should see the Genetics registrar regarding the travel/supply allowance and provide the following information: title, place and time of the meeting; relevance to the research; title and authors of paper being presented (if applicable); amount required for travel, registration, food, and lodging.

C. Use of Computers

Most labs are well equipped with computers or other shared resources for graduate students to analyze data for their dissertations.
FINISHING UP

A. Completion of Dissertation Research

Prior to beginning the writing of the thesis, the thesis committee must meet and certify that the experimental results necessary for writing the dissertation have been completed. It is very helpful for the student to present an outline of their thesis to their committee members for this meeting. Often, additional experiments are still being performed, and it is important for the committee to decide if the outcome of those results is necessary for completion of the thesis or whether the thesis can be submitted successfully without the results of those remaining experiments. If difficulties arise or if it is unclear whether the final experiments were successful, another meeting of the thesis committee should be held and a decision reached whether or not further experimentation is required. In order to obtain approval for a student to start writing their thesis, the evaluation form must be completed and none of the eight criteria are cause for concern. As always, a report of the meeting must be sent to the DGS, committee members, and the student.

B. PhD Dissertation


1. Writing the Dissertation

The Graduate School provides information online for the preparation and presentation of the doctoral dissertation. The Dissertation Submission forms can be found online under Dissertation Submission Checklist at http://gsas.yale.edu/forms as well as at the Graduate School Information Office. Thesis-quality paper is available through Yale RIS; this is far cheaper than other sources, they will deliver, and they can charge a grant.

Most students devote one to several months’ full-time effort to writing their thesis. Submission deadlines always come up faster than is imagined; be sure to allow ample time to receive and incorporate the comments of the thesis committee members. The Department and the Graduate School expect the thesis advisor and the thesis committee members to be actively involved in assuring the quality of the thesis by reading unbound copies and offering constructive criticisms. Some advisors are willing to read the thesis on a chapter-by-chapter basis as it is being written, while others prefer to see a complete version. Most committee members prefer to see the complete version after the comments of the advisor are incorporated. Each student should discuss the schedule of writing and review with the advisor and committee members early in the process. A completed draft of the thesis should be given to all committee members at least 4 weeks prior to the submission date. Each committee member will provide written and/or verbal comments that the student should address in the final copy of the thesis that is turned in to the Graduate School. The student must obtain approval from the advisor or DGS of the final version before it is finally submitted.

Graduate School degrees are awarded in December and May. Forms and instructions are available from the Graduate School or on-line. Final deadlines for the Yale Dissertation Submission and Degree Petition form and submission of dissertations to the Graduate School are October 1, 2015 (for December degrees) and March 15th, 2016 (for May degrees)

The Graduate School requires one original unbound copy. Effective this academic year (2015-2016), the student is given the option to submit the readers’ copy via a pdf file. The readers copies (normally submitted as paper copies to the Dissertation Office) should be emailed as a PDF to departmental registrars (for distribution to the readers). If the reader asks for a paper copy, the student must provide the Dissertation office with the hard copy and they will send it to the reader.

Instructions for Students:

1.) Submit your dissertation in the form of a PDF to your departmental registrar before you submit the final unbound copy (paper) and paperwork to the Dissertation Office (Yale University Registrar’s Office,246 Church St.- 3rd Flr.) on or before October 1st, 2015 or March 16th, 2016.

a.) The file should be saved as a PDF using the "reduced file size PDF" settings.

b.) The file should be named with your last name, first name, middle initial and your department with space in between each. Sample: Smith, John A. - Music Dept.

c.) Email the dissertation to your departmental registrar and make sure to copy dissertationreaders@yale.edu. (Barbara Withington-Dissertation Office supports this email)

2.) Submit your final paper copy (unbound copy) of your dissertation and forms to the Graduate School - Dissertation Office (246 Church St. 3rd floor) on or before October 1, 2015 (December graduation)/ March 15, 2016 (May graduation). All forms and fees must be submitted to the Dissertation Office at the time of dissertation submission.
The student should be prepared to make any changes required by any of the readers in the final copies. Prior review by the thesis advisor and thesis committee makes revisions in the final, submitted version a rare exception. If necessary, however, revisions must be submitted to the Graduate School. One bound final copy is required for the Department and students normally prepare additional copies for their thesis advisor and for themselves. The student is reimbursed for the Genetics Department hardbound copy by submitting a receipt with the bound dissertation to the Genetics registrar.

2. Evaluation of the Dissertation
   The dissertation will be evaluated by two "inside" readers (usually members of the thesis advisory committee, but not the thesis advisor) and one "outside" reader. The "outside" reader can be a Yale faculty member or a faculty from an outside institution. If the "outside" reader is a Yale faculty member, they cannot be a member of the thesis committee or a collaborator on the thesis project or on a closely related project of the advisor. The outside reader provides an impartial critique that helps the Graduate School to judge the quality of the thesis and to evaluate its own processes of review. Readers should be chosen by the advisor in consultation with the student.

   Six weeks before the submission date, the student must provide the names, several (3-10) PubMed references and contact information for at least two potential outside readers to the DGS for approval. After the DGS approves the selection of the readers, the student invites the inside readers to evaluate the thesis. If the student chooses an "outside reader" from another institution, the Genetics registrar invites the outside reader to evaluate the thesis; neither the student nor his/her advisor should communicate directly with the outside reader about the thesis at any time. If the outside reader is a Yale faculty, the student invites them to evaluate the thesis.

   A Notification of Readers form must be completed online and approved by the DGS at the time of submission. The link is as follows: [www.yale.edu/dissertationreaders](http://www.yale.edu/dissertationreaders).

   After the student submits the thesis to the Graduate School and to the departmental registrar, the registrar will send the pdf file of the thesis to the readers, who are asked to judge the acceptability of the dissertation and to provide comments. Students, in consultation with their advisor, are expected to incorporate any additional changes required by the readers into the Graduate School's unbound copy. After the Graduate School and the Department receive written copies of all readers' reports and the requested changes have been made, the DGS, acting as the representative of the faculty of the Department of Genetics, signs a departmental recommendation form for conferral of the Ph.D. degree. The Graduate School Deans committee and the Corporation vote to approve that recommendation. The student is notified by the Dean that the degree has been conferred.

3. Thesis Seminar
   Each student is required to give a department seminar on his/her research. The thesis seminar is scheduled through the Genetics registrar and can occur before or after submission of the thesis. The student must consult their thesis committee as to when to schedule the seminar. However, the seminar must be presented before the DGS signs the departmental recommendation form for conferral of the Ph.D. degree- (November 5th for December degree/April 21st for May degree).

   When material is published from dissertation research, the Graduate School requires that it include a statement saying that the paper is taken from (or based on): "a dissertation submitted to fulfill in part the requirements for the degree of Doctor of Philosophy, Yale University".

   Where a student has been supported by a training grant, regulations require that the following statement be included in publications: "This investigation was supported by National Research Service Award (number of the training grant) from the NIH (awarding unit)".

   The Genetics registrar can supply the relevant grant information. If a student has received other grants (for example, NSF), these should be acknowledged, as should any financial aid received from faculty research grants.

5. Starting Postdoctoral Positions
   Students frequently start postdoctoral positions before the degree has been formally awarded. In such cases, most institutions require a letter from an appropriate University official, such as the Registrar, DGS, or Department Chairman, which certifies that the student has satisfactorily completed all the requirements for the degree. Such a letter cannot be written until the Department has received the readers' evaluation of the thesis.

6. Opportunities and Funding after a PhD
   The following link provides information regarding opportunities and funding after you receive your PhD degree:
   [http://www.yale.edu/giraldezlab/Funding_after_a_Phd.html](http://www.yale.edu/giraldezlab/Funding_after_a_Phd.html)
REGISTRATION

Also see the Yale University Graduate School Programs and Policies 2015-2016.

A. General Information

All students are required by the Graduate School to register, whether they are in residence, in absentia, or submitting a dissertation. An unregistered student is not permitted to use University facilities, including the libraries and the Health Service. For advanced students, certain requirements must be fulfilled prior to registration. These include annual thesis committee meetings and the submission of the Thesis Prospectus and the annual Dissertation Progress Report. For information about registration for new and returning students, please see the Graduate School Academic Calendar.

Late registration incurs a Graduate School fine and must have permission from the DGS and Associate Dean.

All registration and course enrollment is done on-line and must be approved by the DGS. Any changes, i.e. course added or dropped, changed from credit to audit or vice versa, must be reported to the Graduate School by submitting a course-change form signed by the DGS to the Genetics Registrar. Forms are available in the Genetics Graduate Program Office, the Graduate School, or on-line.

NB: Please see the Graduate School Academic Calendar (Appendix 5) for deadlines for submitting course schedules and changes. Course schedules and changes submitted after the Graduate School deadlines incur late fees, payable by the student.

Summer registration is also required of all students supported on Yale-administered funds and students in residence who wish to use University facilities during the period June 1 through August 31 (i.e., essentially all students in the Genetics Graduate Program). There is no fee for summer registration if you have been registered during the preceding academic year. Information about summer registration is sent to students during the preceding spring term.

B. Foreign Student Registration

Foreign students must register at the International Students/Scholars Office, 421 Temple Street, before registering at the Department. This office also helps with visa procedures and concerns.

C. In Absentia Registration

A student, whose program of study requires full-time study at another institution, or dissertation research on a full-time basis outside of the New Haven area, may (on recommendation of the DGS and with permission of the Dean) register in absentia. Students contemplating in absentia registration should consult with the DGS as soon as possible in order for the requisite approvals to be obtained.

D. Leave of Absence

A student in good standing who is current with his/her degree requirements and wishes to interrupt study temporarily for personal reasons (for example, maternity leave; financial necessity; health problems) may be granted a leave of absence with approval of the Department and the Dean. A PhD student is not eligible for leave of absence after the 4th year of study except for reasons of pregnancy, maternity or paternity care, or military service. Students contemplating taking a leave of absence should consult with the DGS as soon as possible to determine eligibility and be informed of the rules regulating leaves, and in order for the requisite approvals to be obtained. See the Yale University Graduate School Programs and Policies booklet.

E. Residence Requirement, Six-Year Limit

Each student must be registered in New Haven for at least three (3) academic years. Any exception to the residence requirement must be approved by the Department and the Graduate School Associate Dean. At the other extreme, the Graduate School sets a six-year limit for completion of the Ph.D. A student who has not completed all degree requirements at the end of six years must petition the Graduate School for an extension of his/her terminal date. This is done through the DGS; forms are available in the Genetics Graduate Program office, the Graduate School, or on-line.
TUITION AND FINANCIAL AID

Also see the Yale University Graduate School Programs and Policies 2015-2016 and the BBS funding guidelines.

A. Tuition

With rare exceptions, all Ph.D. students are charged full tuition for four years (eight terms). In essentially all cases, tuition for graduate students in Genetics is paid by NIH NRSA institutional training grants, individual predoctoral awards from various agencies such as NSF, or by the Department, supplemented with Yale fellowships. Tuition and stipend for advanced students is paid by advisors’ research grants.

After four years of tuition have been paid, the student is expected to continue registering until the dissertation is submitted or the terminal date is passed. The fee for continuous registration (CRF) is paid by a student's thesis advisor.

B. Financial Aid

The Department of Genetics attempts to ensure that all students registered in its Ph.D. program are provided with adequate financial aid. Because financial aid is budgeted on a year-by-year basis, it is not possible to guarantee any particular level of financial aid in subsequent years. However, it is our expectation that graduate students in the Department of Genetics will be supported in the years to come at least at the level described below.

1. Sources of Support

For the 2015-2016 academic year, tuition ($38,500/AY) will be paid for all students. In addition, a stipend of $33,700 will be paid over 12 months. All stipends are considered taxable income, and students are expected to file a tax return with the IRS. The University will withhold tax on all research, teaching and other assistantships; on casual wages paid; and on the fellowship stipends of foreign students. Taxes are not withheld on fellowship or traineeship stipends for U.S. citizens. For the latter, most students file quarterly estimated tax reports. NB: Withholding forms for Connecticut State and Federal taxes must be on file at the Payroll Office, 155 Whitney Avenue and updated annually, otherwise the maximum amount will be deducted from stipend checks. Students who are on assistantships in research (ARs) should file a Federal and State W4 form. See Appendix 5 - Taxation of Scholarships and Fellowships. For more information, go to www.yale.edu/tax. Foreign students should also refer to IRS publication 901 U.S. Tax Treaties.

a) USPHS National Research Service Awards (NRSA) – Training Grants

These awards (which are also called traineeships) support the great majority of students in the Department during their initial years of study. NRSA's (training grants) are awarded to the Department by the National Institutes of Health (NIH), and pay one-half to two-thirds tuition plus a partial stipend of $22,920. A supplement is added by the BBS or the Department of Genetics and the School of Medicine to bring the total tuition and stipend to the current University levels. These positions are only available to US citizens and permanent residents. Predoctoral students are supported by NRSA's for three years. Taxes are not withheld for students on NRSA's, and such students are expected to file estimated tax reports with the IRS.

b) External Fellowships

There are several fellowships administered by federal sources for which students may be eligible (e.g., National Science Foundation, Department of Defense). Announcements of these fellowships are forwarded to eligible students and are online at the respective websites. Also, Dean Sleight's office maintains an extensive file of fellowships and publishes the online Graduate School Fellowship Guide. Students should be aware of the fellowships that are available, and should make every effort to apply for those for which their training and background are appropriate. Being awarded a competitive individual fellowship carries with it several advantages. Stipends on such fellowships are occasionally higher than the NRSA level, funds for travel and laboratory expenses may also be available, and the award will strengthen a student's curriculum vitae. In addition, students who are awarded a competitive fellowship that is open to students on a national level are paid a substantial bonus to their stipend, currently $4,000/year, in accordance with the Graduate School's Combined Awards Policy.

c) University Fellowships

These are awarded by the Graduate School, but Graduate students in Genetics do not usually apply for University Fellowships. However, University Fellowships are provided by the Graduate and Medical Schools for HHMI and NSF awards to make up the difference in tuition and as an additional stipend supplement incentive (Combined Award Policy). These fellowships are only for the duration of the award period.
d) Research Assistantships

Federal and non-Federal research grants and contracts awarded by outside agencies to support the research projects of faculty members may contain funds for research assistantships that can be held by graduate students. Appointments as research assistants are usually only made to students who have been admitted to candidacy for the Ph.D. This is the most common source of support for advanced students, and federal taxes are withheld.

2. How Are Stipend Paid?

The Graduate Student Payroll System (GSPS) is a semi-monthly payroll; stipends are paid on the 15th and the last day of each month. Students may have their stipends deposited directly to their banks. Forms are available in the Graduate Program Office, the Financial Aid Office of the Graduate School or on-line. Questions about pay checks should be directed to the Genetics Registrar.

3. Loans

Students should consult the Financial Aid Office, 127 HGS, tel. 432-2737. This office can provide short-term loans during temporary financial crises (for example, if a stipend check is delayed). This office also has up-to-date information on federally sponsored student loan plans.
OTHER INFORMATION OF INTEREST

A. Graduate Program Steering Committee

This Committee is comprised of faculty and students appointed by the Chairman and the DGS, and oversees various aspects of the graduate program in Genetics. Students with general concerns about the graduate program or suggestions for improvement should contact the DGS or a member of the Steering Committee. Faculty members: Dan DiMaio, Marc Hammarlund and Janghoo Lim. Student members: Diane Manry, Cassie McManus, Brandon Dunn, Erin Heim, Daisy Xin, Kai Mesa and Natasha Shylo

B. Grievance Procedures

A situation can arise where you disagree with a decision made about you, or where you feel you have been treated wrongly by someone in the University. There are several courses of action open to you. You may ask a faculty member, the DGS, the Director of the BBS, or the Department Chairman for advice or assistance. Alternatively, if the matter is one that you do not wish to raise within the Department, there are University-agencies that can act for you.

The Dean of the Graduate School; Lynn Cooley (432-2733) is the initial contact for students for cases in which a student has a complaint against a member of the Faculty of Arts and Sciences or a member of the administration. The Provost of the University (432-4444) governs cases against a faculty member who is not a member of the Faculty of Arts and Sciences or against an employee who is not an administrator in the Graduate School or who is not subject to discipline by the student's Dean. In addition, there is a standing committee to consider student complaints of sexual harassment. Also see the Yale University Graduate School Programs and Policies, 2015-2016. Also see the Yale University Graduate School Grievance Procedures booklet which students receive at the start of the academic year or on-line.

C. Vacation Policy

Students making satisfactory progress toward the completion of their PhD degree will have two weeks vacation in addition to the stated University holidays and the break from Christmas Eve through New Year's Day. Refer to the academic calendar. Additional vacation time will require permission from the thesis adviser.

D. Ethical Conduct of Research

If you believe you have identified a potential case of scientific misconduct, there are a number of steps you should take to resolve the matter. First, you should informally discuss the matter with a faculty member you know, such as your thesis advisor or member of your thesis committee. Such discussions may help define the problem, put it in perspective, and help you decide whether further steps are warranted.

If you believe the matter requires official notice, the next level of discussion is at the departmental level involving either the Director of Graduate Studies or the Chairman. The department takes these matters seriously, and will not penalize an individual for raising reasonable concerns. All steps will be taken to preserve confidentiality to safeguard all parties involved in the dispute.

If the matter is not satisfactorily resolved at the departmental level, the following individuals in the School of Medicine have an interest and experience in dealing with such problems and may be a good source of advice and help:

Merle Waxman (785-4680)  
Associate Dean, Academic Development and Ombudsperson  
Director, Office of Women in Medicine  
L-202 SHM

Finally, if the matter is not satisfactorily resolved, you should contact the Deputy Dean of the Medical School, Professor Carolyn Slayman (737-1770).

E. Graduate Student Representation

Graduate Student Assembly (GSA): Students in the Graduate School of Arts and Sciences have their own student legislative body as a forum for dealing with issues across the School, for providing student representation on University and Graduate School committees, and for consultation with administrators. The Graduate Student Assembly (GSA) is based on a proportional representation model, with student representatives selected by their individual departments or degree programs. Each department or program in the Graduate School has at least one student
representative, with further representatives allotted proportionally by the size of the student population. For comprehensive and up-to-date information on the Graduate Student Assembly, please visit their web page.

**Graduate and Professional Student Senate (GPSS):** The GPSS is predominantly a social group made up of representatives from each of the graduate and professional schools. Each department in the Graduate School of Arts and Sciences elects one Senator. GPSS members plan parties and events for all graduate and professional students, are members of various university committees, and help run the graduate/professional student pub. For more information about GPSS, please visit their web page.

**F. McDougall Graduate Student Center**

The McDougall Center in the Hall of Graduate Studies (HGS) has facilities and services designed specifically for the graduate student community. Created through a generous gift from Alfred McDougall, a Yale alumnus, and his wife, Ms. Nancy Lauter, the McDougall Center’s mission extends beyond the walls of HGS. It’s a great physical space where students can socialize, study and attend workshops, but also a forum where students can create opportunities to interact with the larger Yale and New Haven communities. The Center has a Common Room with the student-run Blue Dog Café, tables and seating for reading, eating, and relaxing; internet ports, and computer kiosks. The McDougall Center also houses the Dossier Service, the Resource Library, meeting rooms, a recreation room, and a computer cluster. Students and postdocs gather here for social, cultural, and professional development activities developed by the McDougall Center offices of Graduate Career Services, Student Life, and Teaching Fellow Preparation and Development. Current graduate students, the McDougall Fellows, and WAT staff work with Center staff to plan programs and events for the graduate student community.

Lisa Brandes, Director of Student Life, oversees the development of the Center and its programs. Students with questions or interest in the Center are encouraged to contact Lisa Brandes in person (HGS 126), by phone (432-2583) or email (Lisa.Brandes@Yale.Edu).

**G. Yale Health Plan (YHP)**

The Yale Health Plan is a prepaid comprehensive health care program, located at the University Health Services Center (YUHSC), 55 Lock Street. All Yale graduate students enrolled at least half-time are automatically members of the YHP, and are eligible for ambulatory care services and use of the infirmary at no additional charge. For entering students, membership in YHP begins on the day of registration. Yale requires that students have hospitalization coverage as well. For the 2015-2016 academic year this coverage will cost $2,176 and will be included as part of the regular financial aid package.

Students may enroll their spouses and dependents under age 26 by filing an application with the YHP. A fee is applied through the Bursar’s Office. Only those spouses and dependents enrolled are eligible to receive YHP benefits and service.

Members of the YHP use the University Health Services for both routine and emergency outpatient care. The YHP encourages its members to select a personal physician from its full-time primary care medical staff. Appointments are scheduled weekdays Monday – Friday between 8:30 a.m. and 5:00 p.m. There is a Graduate Student Medicine Service (432-0038) through Internal Medicine. Emergency care is available 24 hours a day. In addition to primary care and emergency care, a full range of specialty services are available, including Allergy, Dermatology, General Surgery, Mental Hygiene, Neurology, Obstetrics and Gynecology, Ophthalmology, Optometry, Orthopedic Surgery, Otolaryngology and Urology.

For further information about the Yale Health Plan please call or visit the Yale University Health Services Center subscriber services office at 55 Lock Street (432-0246).

**H. Security**

All members of the Yale community are alerted to the fact that Yale is not immune to crime, property loss or even personal injury. Security services are provided in the Medical School by both the Yale Campus Police and members of the University Security Programs Department. The Yale Campus Police are state-certified officers with full arrest powers. Security officers assigned to the Security Programs Department are not police officers. They provide services such as building patrol, access control, escort services, and parking lot security. Individuals are urged to walk in groups or request an escort (785-5555 or 432-9255). Between the hours of 6:00 p.m. and 6:00 a.m., seven days a week, Yale students, faculty and staff can call 432-6330 or 432-WALK to request a University Security safe ride within campus boundaries. Visit the Department of Security on the web.

Night-time transportation is available via the *Nighttime Shuttle*, free of charge with a valid ID, for students working late in the evenings. The Nighttime Shuttle also runs between 6:00 p.m. to 1:00 a.m. Monday – Sunday (seven days a week). This
services runs on a scheduled route around the campus and does off-route drop offs. Call 432-6330 or visit them on their website - [http://to.yale.edu/nighttime-routes](http://to.yale.edu/nighttime-routes)

A brief outline of Security Services & Policies in the Medical Area and a booklet and flyers on security are available at the SHM Rotunda or at the Security Office, room IE41 SHM (785-5555).

I. **Photo ID/Composite Student Picture**

All new incoming students will receive a photo ID at registration. Information on the student ID is included in information to matriculating students from the Admissions Office during the summer. Lost/stolen IDs will be replaced at a cost of $20 payable by the student. Visit them on the web.

The Genetics Department does a composite of student photos in the fall coordinated through the Medical Media Services Department, room IE-93 SHM. Incoming students will receive information at the BBS orientation.

J. **Keys and ID Access**

Laboratory keys are issued by the administrative offices of the individual laboratories: Genetics labs in SHM (Room SHM I-308), BCMM labs (BCMM 109), KBT labs (KBT 1204); and MB&B labs (North: JWG 304 / South: SHM C-106).

In the Medical School we have photo ID access for all entryways. ID access to the Medical School, the Boyer Center for Molecular Medicine, Hope/Brady Bridge Door, Child Study Center Door, and Yale-New Haven Hospital Bridge Door is arranged for incoming students prior to their arrival by the BBS Office or the Medical School Security Office. ID access to Kline, BASS, or OML must be arranged through the main campus security office.

K. **Student Parking**

Daily parking is available at the Medical School at SFAS-billable, monthly rates. Limited off-peak parking is available free of charge to students. Information and applications are available in the Medical School Parking Office, SHM CE1. Visit them on the web. 24-hour parking is available on campus at Pierson-Sage Garage at SFAS-billable monthly rates. Applications are available at the Central Parking Office, 221 Whitney Avenue.

L. **Graduate Student Lounge**

Room SHM I-112 has been set aside as a graduate student lounge (GSL), to be used for studying, informal get-togethers, and other graduate student functions.

M. **E-Mail**

Students automatically receive an email account. This information is sent to new incoming students during the summer by the Office of Student Financial and Administrative Services (SFAS). NetIDs control access to Yale’s email servers (Pine on a UNIX system or IMAP or POP), various internet features, other computer hosts, and the student information system web page. Before you can use these services you must activate your net ID. If you encounter problems with your NetID, please see John Alvaro in the BBS office.

N. **Mail**

The departmental mailroom is SHM I-307. All students have a mailbox. Advanced students may also receive mail in their lab’s box.

O. **Parental Support and Relief**

Registered Ph.D. students who wish to modify their academic responsibilities because of the birth or adoption of a child may request parental support and relief during or following the term in which the birth or adoption occurs. For the whole of the term in which the support and relief are requested, the student’s academic clock stops, effectively adding an additional term to the total time to degree. During this period, students remain registered, receive the full financial aid package as specified in their letter of admission, and receive modified departmental academic expectations that best suit the specific situation. The precise nature of the academic responsibilities undertaken or suspended during this period should be a matter of consultation among the adviser, the student, and the Graduate School, with the understanding that students are entitled to full relief for at least an eight-week period. Students who take only eight weeks of relief during the term in which, or just after, a birth or adoption occurs may receive an additional eight weeks of stipend funded by the Graduate School in a later term. Parental relief may not be combined with other funding. To arrange for parental relief, a student should contact the appropriate associate dean four months prior to the birth or adoption. This benefit is limited to two birth or adoption events. If
both parents are graduate students at Yale, only one student may receive this benefit per birth or adoption event, though the second student may consult with the associate dean regarding a modification of academic responsibilities. Please notify the DGS and Genetics registrar if you plan to request this support.
THE QUALIFYING EXAMINATION
(Revised 10/93, 08/95, 07/98, 07/99, 08/00, 10/12)

The Qualifying Examination provides an opportunity for the faculty to evaluate students before their admission to candidacy to the Ph.D. degree. It is also a valuable learning experience in which a student has a chance to read critically with faculty on the thesis topic and two other topics of interest to the student. The overall structure of the Qualifying Examination is as follows:

- A five-week reading period during which three topics (one thesis topic, one non-thesis topic, and one topic that can be either thesis or non-thesis) selected by the student are studied in depth.
- A two-week period for the preparation of two research proposals (thesis and non-thesis).
- An oral examination covering the reading topics, the proposals, and other areas of genetics.

The Qualifying Examination requires the full-time attention of each student. Ideally, the student should not be enrolled in courses during the qualifying examination period. If the student wishes to take a course concurrently with the Qualifying Exam, prior permission must be obtained from the DGS, and any necessary special arrangements must be made with the instructor of the course.

Guidelines for the Qualifying Examination

Setting up the exam

In the fall of the second year, the student consults with his/her advisor about topics and potential faculty readers. At least one of the three faculty members on the qualifying exam committee must have an appointment in the Genetics Department. The student should first identify faculty who can cover literature relevant to the thesis proposal. The second reading topic must be unrelated to the thesis topic. The third reading topic can be either some area the student wants to expand his/her knowledge, related to the thesis or an additional non-thesis topic. The “anti-thesis” must be written on the non-thesis topic, and this should be far and totally unrelated to the thesis. The student may pick either the topic first and then find a faculty member to read with, or pick a faculty to read with and then jointly choose the topic. The student should have some familiarity with the non-thesis topics (from coursework or independent reading) so that current research in the field can be critically evaluated. Once the student has some ideas about the qualifying exam committee and topics, the student sends this information and a short description of the topics to the DGS for approval. The DGS may require modification of the reading topics if they are too broad, too focused or too closely related to one another. Based on this information, the DGS, in consultation with the student, will appoint the committee and designate a Genetics faculty member as the Chairperson. In consultation with the exam committee, the student establishes a schedule for the reading and writing weeks, and (most importantly) the date of the oral exam. A list of the final approved exam committee, the Chairperson and topics must be distributed by the student to all committee members, the advisor, the DGS, and the Genetics registrar.

Beyond the mining of scientific knowledge through the study of relevant literature, the broader purpose of the reading period is to help students hone the critical skills they should employ in developing and defending their own proposals for the exam and for their developing scientific careers. The active roles of faculty in supporting both these aims is described below under “Role of Thesis Advisor”, “Responsibilities of the Committee Members”, “Responsibilities of the Chairperson of the Examining Committee” and “Responsibilities of the DGS”. Students and faculty are urged to review these sections to arrive at a common understanding of the entire process of Qualification.

Responsibilities of the Student

- Select three faculty (at least one in Genetics) and three topics (one thesis, one non-thesis, and one that can be either thesis or non-thesis)
- Establish an exam schedule
- Obtain approval from the DGS
- Circulate the topics, reading period schedule, time & place of the oral exam, a list of committee members, and the name of the chairperson to the DGS, the committee, the thesis advisor, and the Department Registrar
- Give each committee member a copy of the Guidelines for the Qualifying Exam

Reading Period (5 weeks)

The reading period should not exceed 5 weeks. During the reading period, the student meets for approximately an hour per week with each faculty reader to discuss and critically evaluate specific scientific papers; however, the frequency
and length of the meetings may vary at the discretion of the faculty readers. The focus of the reading period should be on primary research literature, supplemented when necessary by reviews. The choice of papers may be made by the student, the reading faculty or both, and the thesis advisor may be consulted about the reading. Typically, students read in depth 2-5 papers per week for each of the faculty readers.

- Meet with each of the faculty readers at least once per week
- Develop outlines for the research proposals
- Remind committee members and advisor of the time and place of the oral exam

**Writing Period (2 weeks)**

The student will prepare two brief research proposals (not more than 8-10 pages each, double spaced), one on the thesis topic and the second on one of the other reading topics. Each proposal should concisely review the pertinent background information, logically and clearly state the questions being asked, and intelligibly lay out the experimental plan according to the following outline:

- **Specific Aims** (Half a page or less). A concise statement of the general problem under study and the explicit goals of the project.
- **Background and Significance** (no more than 3 pages). This section should place the experiments in context and describe the system in a manner intelligible to a non-specialist. This should include a critical evaluation of the relevant literature and a description of how this project will advance knowledge in the field.
- **Experimental Plan**. Outline the experiments envisioned at this time and indicate how they will help you attain the overall goals of the project. Acknowledge pitfalls and limitations of your experimental approach, and if possible suggest alternative strategies. Suggest possible results and how they would be interpreted. Relevant preliminary results, if available should be included.
- **References** which should be included at the end, do not count in the page limit. It is often helpful to include a page or two of diagrams/figures/tables.

The proposals are normally written during the writing period, although the student may elect to begin working on them sooner. The proposals should demonstrate the student's ability to recognize important unsolved questions and to design experiments to answer them. They should, therefore, be original proposals, developed solely by the student and not read by anyone else before being handed in to the exam committee and the DGS. The thesis proposal may reflect discussions with the research advisor, but it should emphasize the student's priorities and original ideas. The non-thesis proposal should be developed from one of the reading topics, and it will serve as an example of independent scholarship. The committee will judge the proposals on the basis of logic, clarity, feasibility and originality.

- Write the thesis and non-thesis proposals (do not have them read by other students or faculty until the proposals are submitted)
- Submit the proposals to each member of the exam committee one week prior to the exam. It is imperative that the committee members read the student’s proposals before the exam so that they can fully evaluate the student’s performance.
- A period of one week to prepare two presentations reflecting the content of the above proposals for the oral exam.

**Preparation for Oral Examination**

The oral examination will take place no more than one week after submitting the written proposals unless the DGS approves a later schedule.

To prepare for the oral exam, the student is strongly encouraged to organize and take a practice oral exam with students and postdocs from their lab or from the laboratories of their qualifying exam committee. The student may give the mock exam committee drafts of the research proposals. The thesis advisor and other faculty are not allowed at the practice exam.

- Prepare short talks on each proposal
- Recruit a mock exam committee consisting of students and postdocs
- Hold a practice exam
**Oral Examination**

All oral exams will follow the same general format. The oral examination will focus on the student’s ability to present and defend the two research proposals. The student should come to the exam with short (~15 minute) presentations for each proposal and visual aids, such as slides and overheads. The student must also bring the qualifying exam report form. The actual presentations will take longer since faculty will interrupt with questions. The committee can also ask questions on topics covered during the reading period and general topics in genetics that will have been covered in courses and recent Genetics seminars. The thesis advisor will not be present at the oral exam. The exam usually lasts about 2 hours.

At the beginning of the exam, the committee will excuse the student for a brief period to discuss the quality of the written proposals and the student's performance during the reading period. The student will be invited back in to present the thesis and antithesis proposals, spending approximately one hour on each proposal. At the end of the oral exam, the student will again be excused and the committee will discuss the student's performance and complete the exam report form. Following this, the student will be invited to return to the exam room and the committee will tell the student its evaluation, as well as provide feedback on the entire exam period. The student will bring the evaluation form to the DGS.

**Evaluation**

The committee will evaluate the student's performance in the seven criteria listed on the exam report form, and there are four possible outcomes based on the evaluation:

The four possible outcomes are:

- **PASS** – the committee’s evaluation of the seven criteria is fair or higher.
- **CONDITIONAL PASS** – the committee’s evaluation of the seven criteria is fair or higher, but the student needs to correct minor deficiencies (for example: write a paper)
- **DECISION DEFERRED** – the committee’s evaluation of two or more of the seven criteria is considered unacceptable or marginal. Student has major deficiencies, and the committee will require a re-take of the qualifying exam at a date specified by the committee (~six months after the initial exam). When retaking the exam, the mentor will provide a letter outlining the scientific progress, work ethic, and aptitude of the student towards lab work and scientific research. If the major deficiencies are not corrected, the decision of the re-exam will be “FAIL”.
- **FAIL** – the committee’s evaluation of two or more of the criteria is considered unacceptable. There are major deficiencies in the work, knowledge or aptitude of the student towards obtaining a Ph.D. The committee feels that additional time will not make a significant difference in the outcome of the exam.

**Evaluation criteria:**

1. Presentation style and clarity of written proposal
2. Quality and clarity of oral presentation
3. Scientific merit of proposed research, importance of problem, novelty, probability of success
4. Thinking deeply/critically about research project, seeing the "big picture”
5. Understanding of relevant techniques/approaches; underlying mechanisms, strengths and limitations:
6. Anticipating potential technical problems and other reasons why the project might not work:
7. Knowledge of the scientific literature in the topic areas

**Overall exam timing**

The qualifying examination must be completed by the end of the fall semester of the second year. Extensions must have prior approval of the DGS. A timeline for the exam is:

- Well in advance of the exam: meet with advisor and DGS to discuss the exam
- Before exam starts: meet with reading faculty to decide on reading for the first week
- Weeks 1-5: meet weekly with each reading faculty
- Weeks 6-7: write proposals
- End of week 7: hand in proposals to committee, advisor, Graduate Program Office
- By end of week 8 or 9: oral examination
Role of the Thesis Advisor

The student should start his/her exam only after a thesis project is well established in the lab. The thesis advisor should already have had substantial input to the aims and experimental approaches for the project. The student should already have done significant reading on the thesis topic, including all recent papers from their lab, and discussed these papers with the thesis advisor. Therefore, the student will enter the qualifying exam with the benefit of intellectual support from his/her advisor, possibly including the opportunity to read grant proposals written by the advisor.

The thesis proposal for the exam should be developed by the student based on his or her research experience and reading to date, as well as discussions and interactions with the thesis advisor, other faculty and colleagues. Students are strongly encouraged to discuss their ideas with the thesis advisor, and to get his or her specific and detailed criticism. Notwithstanding this recommendation, a line should be drawn between that central and ongoing interaction, and the actual writing of the proposal which should be done solely by the student based on the knowledge gained from the aforementioned interactions and reading. The written proposal should not be shared with the thesis advisor until after it is submitted to the qualifying exam committee.

Prior to the exam, the thesis advisor will provide a brief written evaluation of the performance of the student in the lab to the chairperson of the exam committee and the DGS. The thesis advisor will not be present at the oral examination.

Responsibilities of the Committee Members

- Read the entire Qualifying Examination guidelines!
- When you are asked to serve on an examining committee, you should feel free to comment upon and modify the topic on which you are reading. Is it too broad or too narrow? Is it worded clearly? Could the topic be revised to make it more interesting or more appropriate in scope?
- Before the beginning of the reading period, you should help the student embark upon appropriate program of reviewing and reading. The student will probably have his/her own ideas regarding general references (reviews or chapters which survey each topic as a whole) and specific references (key research papers), but may have overlooked other valuable references and will benefit from your advice and help.
- During the reading period, the student will return to see you regularly to ask questions and discuss the reading. It is best to set up a schedule of meetings at the beginning of the reading period.
- If during the course of the reading period it becomes apparent that the student is having difficulties, the committee Chairperson and the DGS should be notified immediately.
- At the end of the writing period, the student will deliver to you two brief research proposals designed to illustrate the student's capacity to develop interesting ideas for research. You must read both proposals, regardless of whether your reading topic is represented in them. If you detect defects of sufficient importance to jeopardize a successful outcome of the exam, you should discuss your criticisms with the student and immediately notify the chairperson and DGS.
- At the oral examination, you should design your questions to serve three functions: to amplify and clarify the proposals; to explore the breadth of the student's knowledge within each subject area; and to assess the student's overall preparedness for independent Ph.D. research.

Responsibilities of the Chairperson of the Examining Committee

In addition to the duties shared with the other committee members, the Chairperson has two special responsibilities:

- To monitor the student's performance during the reading period. The Chairperson should contact the other committee members mid-way through the reading period to find out if there are any problems. If it becomes apparent that the student is experiencing difficulties during the reading period, discuss the problem candidly with the student and other committee faculty to identify the source of the problem and try to resolve it. Inform the DGS of the situation.
- To preside over the oral examination and to communicate the results of the entire examination to the student and DGS. At the beginning of the oral examination, the usual procedure is for the committee to meet without the student for 5-10 minutes to discuss the proposals and the student's overall performance up to the oral examination. Following the oral questioning, the student is asked to leave the room again, and then the Chairperson presides over a
discussion of the student's performance on the examination as a whole. The Chairperson should take a vote on which of the recommendations to make to the DGS (see Evaluation section). The student then returns and the committee reports its evaluation and transmits specific advice, feedback & recommendations. Finally, the student brings the completed evaluation form to the DGS for his signature. The evaluation form should include the date of the exam, the committee members present, any salient features of the exam, favorable or not, and the recommended outcome.

**Responsibilities of the DGS**

- To discuss with each student their qualifying exam topics and choice of faculty, modify them if necessary, and give final approval.
- To obtain a written evaluation of the performance of the student in the lab from the thesis advisor and send a copy to the exam committee Chairperson. The evaluation should be short, and should alert the committee and DGS to any significant problems the student is having in the lab. This letter must not be forwarded to the student.
- **If informed by the Chairperson or members of the Qualifying Exam Committee of serious deficiencies during the reading period, or after the research proposals have been delivered prior to the exam, the DGS and Chairperson, acting jointly, should immediately arrange for counseling of the student, and if necessary should postpone the date of the exam to provide the student the opportunity to correct the defects.**
- To notify the Graduate School of the grade of the Qualifying Examination.
QUALIFYING EXAM COMMITTEE REPORT

Student’s name: ___________________________ Date of meeting: ________
Thesis Advisor: ___________________________ Year of study: ________
Committee members in attendance: ____________________________________________

Please assess the abilities/performance of the student in each of the areas listed below by circling the appropriate descriptor.

1. Presentation style and clarity of written proposal
   Unacceptable  Marginal  Fair  Good  Excellent
   If an area of concern to the committee, please comment briefly below:

2. Quality and clarity of oral presentation:
   Unacceptable  Marginal  Fair  Good  Excellent
   If an area of concern to the committee, please comment briefly below:

3. Scientific merit of proposed research, importance of problem, novelty, probability of success:
   Unacceptable  Marginal  Fair  Good  Excellent
   If an area of concern to the committee, please comment briefly below:

4. Thinking deeply/critically about research project, seeing the “big picture”:
   Unacceptable  Marginal  Fair  Good  Excellent
   If an area of concern to the committee, please comment briefly below:

5. Understanding of relevant techniques/approaches; underlying mechanisms, strengths and limitations:
   Unacceptable  Marginal  Fair  Good  Excellent
   If an area of concern to the committee, please comment briefly below:

6. Anticipating potential technical problems and other reasons why the project might not work:
   Unacceptable  Marginal  Fair  Good  Excellent
   If an area of concern to the committee, please comment briefly below:

7. Knowledge of the scientific literature in the topic areas (please fill in blanks) assigned at the pre-prospectus meeting:
   Topic 1: ____________________________________________
   Topic 2: ____________________________________________
Provide additional comments (e.g., areas where student should aim for improvement), if desired.

Committee Recommendation (please check):

_______ Pass
_______ Fail
_______ Decision Pending Additional Work (Conditional Pass), The student should correct some deficiencies in the qualifying exam by:

_______ Student rewriting proposal
_______ Student writing paper(s) on specified topic(s) (please specify)
_______ Student reading literature on specific topic(s), then meeting with individual committee member(s), (Please specify topics and committee members)

Specify time frame for completion of any additional work:

_______ Decision Pending Major Additional Work (Conditional Pass). Major deficiencies were found during the qualifying exam.

_______ Student retaking oral exam in six months.

Name of Committee Chair________________________
Signature of Committee Chair________________________

Appendix 3

GUIDELINES FOR GENETICS RESEARCH PROPOSAL
FOR FIRST THESIS COMMITTEE MEETING

The thesis proposal written for the qualifying examination will serve as a starting point. The revised proposal should incorporate important suggestions from your qualifying committee and your advisor. In addition, the focus or plans for your thesis work may have shifted since your qualifying examination. The proposal should be no more than 10 double-spaced pages and conform to the following format:
1. **Specific Aims** (1 page or less). A concise statement of the general problem under study and the explicit goals of the project.

2. **Background and Significance** (no more than 3 pages). This section should place the experiments in context and describe the system in a manner intelligible to a non-specialist. This should include a critical evaluation of the relevant literature and a description of how your research project will advance knowledge in the field.

3. **Preliminary Results** (2-3 pages). Description of the experiments you have already carried out and the results and your interpretation of them.

4. **Proposed Experiments** (3-4 pages). Outline the experiments envisioned at this time and indicate how they will help you attain the overall goals of the project. Acknowledge pitfalls and limitations of your experimental approach, and if possible suggest alternative strategies.

5. **References** should be included at the end and are not counted in the page limit. If necessary, you can also include a page or two of diagrams/figures/tables.

6. The complete proposal should be distributed to the thesis committee and the DGS **one week before** the committee meeting.

The main objective of writing this proposal is to familiarize your committee with your project. It also gives you a chance to refine your goals based on comments from your advisor and qualifying committee and any additional preliminary results you have obtained. Prepare a short talk with overheads. The committee meeting is not an exam; it is intended to aid the productivity of your research efforts.

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**Appendix 4**

**THESIS COMMITTEE MEETINGS GUIDELINES**

1. The thesis committee must meet for the **first time** by the spring (May 15th) following the student’s Qualifying Exam which would be their 4th semester. (Before the end of their 2nd year)

2. The chairman of the thesis committee cannot be the student’s advisor.

3. At the beginning of the meeting, the student is asked to leave. Once the student is called back the meeting then proceeds with the student presenting his/her research and progress. At the conclusion of the meeting, the advisor is then excused.
from the room, so the student can voice any concerns regarding about the project, mentorship or interaction with the mentor. Having the chair be a genetics faculty different from the mentor provides a person who can lead a discussion with the committee members and student. The mentor is then invited back and the student is asked to leave again and the chairman consulting with the advisor and the committee complete the evaluation form. The student is invited back in to discuss the evaluation form, performance and expectations.

4. The student should prepare a career development plan and send it 3-7 days before the committee meeting to their thesis committee and discuss it during the thesis meeting. (please use the form provided)

5. The student must bring the completed evaluation form and career development plan to the DGS for his review, discussion and signature during the open office hours.

6. After two committee meetings (approximately starting in the fourth year), students must subsequently have a committee meeting at least every 6 months. Basically there should be a committee meeting within the first half of their fourth year and maximum every 6 months after that)

7. It is typically expected that for admittance to candidacy after the first thesis committee meeting and to obtain the green light to defend the thesis, the student must obtain the evaluation of acceptable or outstanding in all 7 areas below:

**Evaluation criteria:**

- Progress since last thesis committee meeting (or qualifying exam if no prior meeting)
- Knowledge of the relevant scientific literature
- Thinking critically about the project, seeing the “big picture”
- Demonstrating initiative and independence in experimental design and project directions
- Motivation and work ethic
- Technical competence at the bench, trouble-shooting ability
- Quality of written and oral presentations
GENETICS THESIS COMMITTEE FORM

Student's name: ___________________________________ Date of Meeting: __________
Thesis Advisor: ___________________________________ Year of Study: __________
Committee Members in attendance: __________________________________________________

Please evaluate each of the areas below by circling the appropriate descriptor and provide comments where appropriate. This form should be signed by the advisor, committee members and student then brought by the student to the DGS.

1. Progress since last thesis committee meeting (or qualifying exam if no prior meeting):
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:

2. Knowledge of the relevant scientific literature:
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:

3. Thinking critically about the project, seeing the “big picture”:
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:

4. Demonstrating initiative and independence in experimental design and project directions:
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:

5. Motivation and work ethic:
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:

6. Technical competence at the bench, trouble-shooting ability:
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:

7. Quality of written and oral presentations:
   Cause for concern to committee Meets Expectations Outstanding
   If cause for concern, please explain:
Note: If this is the first or last thesis committee meeting since the qualifying exam, an evaluation of Meets Expectations or Outstanding in all areas 1-7 above is required for the student to be admitted to candidacy or get the green light to graduate.

8. Is the student on track to graduating in 5 years?
   Yes  Probably  Maybe  No  Too soon to say

9. Does the student have a publishable story or at last the beginnings of one?
   Yes  Probably  Maybe  No  Too soon to say

The student should present an outline of the figures of the paper/s

10. Should the student consider switching to a new project?
    Yes  No  Too soon to say

Comments: If in doubt, please describe additional experiments to assess the viability of the project.

11. When should the student have another committee meeting?
    3 months  6 months  9 months  12 months
    (Note: Students are required to have at least 1 meeting per academic year)

12. Does the committee agree with the student's future plans as stated in the student's Progress report summary?
    Yes  No
    If no, please explain:
    If certain minimal goes must be achieved in order for the student to remain in good academic standing, please specify them and any deadline for meeting them:

13. Please discuss the student's Career Development Plan with the student in private or while the supervisor is present. Please Comment on specific advice to achieve the goals in the plan:

14. Is the student ready to write his/her thesis and graduate?
    Does the committee agree with the student's proposed thesis outline and plan for graduation (assuming it was presented)?
    Yes- means that it is the last thesis committee meeting and the student is being given permission to write up the dissertation and schedule a thesis seminar date.
    Yes  No  N/A
    If no, please explain:

14. Does the student have any questions about preparing post-graduation plans (applicable to 4th year student and above)?
    Any other comments
“Graduate Student Seminar: Critical Analysis & Presentation of Scientific Literature”

Marketing yourself and your research are important ingredients for success. The Graduate Student Seminar has three major goals:

1) To **improve the presentation skills** of graduate students

2) To assist students in **critical evaluation of the literature**

3) To expose our genetic students to the **breadth of our departmental science**.

- Second year students are required to attend. This year, each week, two students will present one paper each from a particular field. Class will run from 1:30PM to 3PM on Wednesday afternoons for the first semester and then will run within the RIP format for the second part of the course.

**Selecting Papers**

- Two students will present two papers: one "Classic Paper" and one "Current Paper" during the Fall/Winter semester and **their own research at RIP in the Spring Semester**.

- "Classic papers" are historical studies of great relevance in a particular field, chosen at the faculty advisor's discretion. Faculty advisors: please note that the relevance of the paper is more important than its vintage. If one of the foundational papers in your field appeared several years ago, feel free to choose it. However, advisors are strongly encouraged to select classic papers that meet one or more of the following criteria:
  1. Foundational papers now regarded as classic.
  2. Papers whose findings were the product of sound scientific method and experimental approaches, and were once widely accepted but have since been overturned;
  3. Papers once widely accepted as accurate but that suffered from serious methodological or conceptual errors that have since discredited them;

The goal is to lead the students to a more sophisticated and critical reading of the literature, without fostering cynicism.

- “Current papers" are recent studies on topics of particular interest to the faculty advisor.

The faculty advisor and the students together select the papers to be presented and supporting relevant literature. It is important for the student to understand the context in which to place the paper to be presented. Both students will meet at the same time with the faculty advisor in order to maximally absorb from the exposure and the discussion the faculty. **Presenting students will read the assigned literature and meet two times with the faculty advisor to first, discuss it and second, elicit feedback on the presentation that they have put together.**

**Seminar Format and Objectives**

- "Each presentation will last no longer than 20 minutes (exclusive of questions and comments during the presentation), followed by discussion of the paper and critique of the student's presentation, not to exceed 40’ total. The presentation must include a critical evaluation of the paper, not merely a summary
of the results. Students and the faculty advisor are encouraged to ask clarifying questions during the presentation.

- **The faculty advisor is responsible for encouraging critical discussion.** The advisor should also provide background and insight into the studies, and for topics that arise during the discussion.

- At the end of the presentation, the faculty advisor along with the rest of the class will provide constructive critique of the student's presentation. The goal is to provide feedback that will help the student correct obvious flaws in his/her speaking style, approach, and communication of the material. The critique is also intended to highlight good speaking habits and strategies and point out ineffective ones for the other students. The advisor should be as critical as is warranted.

- Everyone is expected to have read the papers before the seminar and to participate in discussion. The speaker and students should critically evaluate the work – not every paper is a good one.

- In order to improve students' critical reading and foster discussion after the presentation, **every student is required to 1) read the paper and 2) bring along a written summary of 3-4 lines of what is the paper punch line followed by two questions on the paper's results, model or implications of the findings.** Note - copying and pasting sentences from the paper is considered plagiarism. In your own words, summarize in 3-4 lines where the field was standing before this paper, and the most important step forward provided by the presented paper. In addition, students in the audience will be called upon following the presentation unless they voluntarily speak by themselves. Bring the written punch line and questions to the faculty coordinator at the beginning of every class.

- **All students are required to attend every seminar. Failure to attend without an excused absence from the instructor will result in failure of the course.** Excused absences are rare but may include illness or family emergencies. *Preparation for the qualifying exam or scheduling a qualifying exam at the time of the GSS class does not qualify for an excused absence.*

**Content of the Presentation**

**A Few General Tips**

- In preparing any part of the presentation, focus on the punch line of your talk. Then work backwards in providing the key data supporting the punch line and the right introduction necessary to understand the relevance of the identified punch line.

- To make sure you engage your audience, identify the conceptual relevance of what you present. Especially in such a diverse department such as the Genetic one, very few people will know your field of interest and very often will not know the techniques or tools you use.

- Make sure every slide has a premise in the title. Titles have to contain a statement from which a conclusion can be drawn.

- In making your slides make sure that 1) they are not too crowded, 2) the right size is used for the audience to be able to read from far away and 3) the right colors are chosen. In preparation of a presentation, students are encouraged to view their own slides projected on a large screen (rather than on a computer screen) and to sit near the back of the room to see if the print is big enough and the colors stand out appropriately. Colors stand out differently on a computer screen versus projection on a large screen.

- On color: The use of color should be limited and critically examined for usefulness vs. obfuscation. If a colored object is used with a superimposed label, contrast of the label and object should be examined and maximized following trial inspection on a large screen, as suggested above.

- While presenting, face your audience. Do not turn your back to people but engage them by looking straight in their eyes. Speak up clearly by projecting your voice. Your model should be an actor projecting his voice on stage, not a two-person discussion.
**Introduction**

State the title and the authors. Give the overall goal of the study. Tell us why the goal is an important one; if the goal is not important tell us why. Give us the background. This involves explaining the foundation upon which the work is built and why these results are noteworthy. This will usually involve reading more on the subject than is included in the papers you will present. This is why you must begin working on your seminar 1 to 2 weeks prior to the day you will present it. If the paper was not widely accepted on first publication, tell us why.

**Results**

There will not be time to present all of the results. Therefore, present only the crucial ones. For each result there is usually a specific question being addressed and a methodology being employed. State the question first. Second, go over the method. Do not assume everybody is familiar with the methods. However, if during earlier presentations, a method was described very carefully, just touch upon it. If the methods used were not the best ones to address the question, state this and tell us why and describe methods that might better address the question.

Show us the results. If you are pasting figures directly into your presentation, you may need to edit tables or re-label graphs etc. to make them clear. Evaluate the results. Are there error bars? Are the results significant? How many flies/worms/fish/yeast were used in the experiment? How many times were the experiments conducted? Are they presented clearly? **Be critical** – the paper may have serious flaws.

**Conclusions**

State the important conclusions. Remember that a conclusion and an interpretation are different. Are the conclusions justified by the results? Do the results support the model presented? Do the authors make conclusions or is a laundry list of experiments presented? What is the interpretation of the study? Are there other interpretations? What are they and why? Explain why the papers are significant, different, and selected to be read in this class. Have one final slide in which you identify follow-up questions and the experiments that can help address the questions you have identified.

**Evaluations**

Every student presenting should print his/ her presentation for each person in the audience. Use the handout power point presentation format containing 6 slides per page, and double sided. Students in the audience should write their feedback in correspondence to the appropriate slides and hand the printed presentation back to the presenter at the end of the session. These evaluation forms are to be returned to the speaker to assist the speaker in improving her/his presentation skills. This evaluation will be anonymous. The faculty advisor will also provide a written evaluation for the seminar, critiquing the speaker’s presentation skills and offering suggestions for improvement. Finally, please send the PowerPoint presentation to the faculty coordinator just before or right after class.

**Course Materials**

It is in the best interest of the students to contact the designated faculty member two weeks prior to the class. This will be enough time to 1) get the articles from the faculty, 2) to read them along with the literature supporting the article and 3) go back to the faculty advisor to discuss both the paper and the format of their presentation. The papers will be emailed to the rest of the class at **least a week prior to class**.

Meetings will be monitored by the faculty coordinator of the seminar course. Faculty advisors and students should direct any questions to her.

**Contact information:**
Faculty Coordinator:
Valentina Greco (valentina.greco@yale.edu)
Office: NSB 336B
Phone: 737-5241
Registrar:
Debbie Losi-Sullivan (deborah.losi-sullivan@yale.edu)
Office SHM I 313
Phone: 785-5846
THE DISSERTATION PROSPECTUS

Suggested Guidelines from the
Executive Committee of the Graduate School
(April 1990)

The Executive Committee recognizes that the form and content of dissertations develop and change as work on them proceeds. The prospectus should therefore be viewed as a preliminary statement of what the student proposes to do and not as an unaltered contract. We also recognize that the appropriate form and typical content of a prospectus will inevitably vary somewhat from field to field. In most cases, however, we would expect a prospectus to contain the following:

1. A statement of the topic of the dissertation and an explanation of its importance. What in general might one expect to learn from the dissertation that is not now known, understood, or appreciated?
2. A concise review of what has been done on the topic in the past. Specifically, how will the proposed dissertation differ from or expand upon previous work? A basic bibliography should normally be appended to this section.
3. A statement of where most of the work will be carried out—for example, in the Yale library or another library or archive, in the laboratory of a particular faculty member, or as part of a program of field work at specific sites in the United States or abroad.
4. If the subject matter permits, a tentative proposal for the internal organization of the dissertation—for example, major sections, subsections, sequence of chapters.
5. A provisional timetable for completion of the dissertation.

* * * *

Although it is difficult to prescribe a standard length for the prospectus, it should be long enough to include essential information for all proposed topics but concise enough to focus clearly on the subject. About seven pages, including bibliography, should be sufficient in most cases.

The Genetics Dissertation Prospectus

A thesis research proposal, updated from the student’s first thesis committee meeting, generally suffices for the formal Dissertation Prospectus. A cover page should be included with signature lines for the advisor and DGS to indicate their approval.
# ACADEMIC DATES & DEADLINES FALL TERM 2015

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday, August 24</td>
<td>New student orientation week begins.</td>
</tr>
<tr>
<td>Wednesday, August 26</td>
<td>Fall-term Online Course Selection (OCS) begins.</td>
</tr>
<tr>
<td>Thursday, August 27</td>
<td>Matriculation Ceremony</td>
</tr>
<tr>
<td>Friday, August 28</td>
<td>Oral Performance Assessment for international students in Ph.D. programs</td>
</tr>
<tr>
<td>Monday, August 31</td>
<td>Fall Teaching Day at Yale: Orientation for all new Teaching Fellows</td>
</tr>
<tr>
<td>Wednesday, September 2</td>
<td>Fall Term Classes begin, 8:20 a.m.</td>
</tr>
<tr>
<td>Friday, September 4</td>
<td>Friday classes do not meet. Monday classes meet instead</td>
</tr>
<tr>
<td>Monday, September 7</td>
<td>Labor Day. Classes do not meet.</td>
</tr>
<tr>
<td>Friday, September 11</td>
<td>• Final day to apply for a fall-term personal leave of absence.</td>
</tr>
<tr>
<td></td>
<td>• The entire fall-term tuition charge or Continuous Registration Fee (CRF) will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a leave of absence effective on or before this date.</td>
</tr>
<tr>
<td></td>
<td>• Due date to notify department of intention to submit dissertation for award of Ph.D. in December</td>
</tr>
<tr>
<td>Tuesday, September 15</td>
<td>Final day to file petitions December MA, MS, MPhil degrees</td>
</tr>
<tr>
<td>Wednesday, September 16</td>
<td>Fall-term online course selection (OCS) ends. Final day for registration. A fee of $50 is assessed for course schedules submitted after this date.</td>
</tr>
<tr>
<td>Friday, September 25</td>
<td>One-half of the fall-term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a medical leave of absence effective on or before this date (The CRF is not prorated.)</td>
</tr>
<tr>
<td>Thursday, October 1</td>
<td>• Final date for the faculty to submit grades to replace Temporary Incompletes (TI's) awarded during the previous academic year.</td>
</tr>
<tr>
<td></td>
<td>• Due date for dissertations to be considered by the Degree Committees for award of the Ph.D. in December</td>
</tr>
<tr>
<td>Tuesday, October 20</td>
<td>• October recess begins, 5:20 pm</td>
</tr>
<tr>
<td>Monday, October 26</td>
<td>• Classes resume</td>
</tr>
<tr>
<td>Friday, October 30</td>
<td>• Final day to change enrollment in a fall-term course from Credit to Audit or from Audit to Credit.</td>
</tr>
<tr>
<td></td>
<td>• Final day to withdraw from a fall-term class</td>
</tr>
<tr>
<td></td>
<td>• Readers' Reports are due for dissertations to be considered by the Degree Committees for award of the Ph.D. in December</td>
</tr>
<tr>
<td></td>
<td>• One-quarter of the fall term full tuition charge will be canceled for students who withdraw from the Graduate school on or before this date or who are granted a medical leave of absence effective on or before this date. The CRF is not prorated.</td>
</tr>
<tr>
<td>Thursday, November 5</td>
<td>• Departmental recommendations are due for candidates for December degrees.</td>
</tr>
<tr>
<td></td>
<td>• Final day to withdraw a degree petition for degrees to be awarded in December</td>
</tr>
<tr>
<td>Thursday, November 12</td>
<td>Oral Proficiency Assessment for international students in all GSAS programs.</td>
</tr>
<tr>
<td>Friday, November 20</td>
<td>November recess begins, 5:20 p.m.</td>
</tr>
<tr>
<td>Monday, November 30</td>
<td>Classes resume, 8:20 a.m.</td>
</tr>
<tr>
<td></td>
<td>Final day to submit Petitions for Extended Registration and Dissertation Completion status for the Spring term</td>
</tr>
<tr>
<td>Wednesday, December 16</td>
<td>Classes end, 5:20 p.m.</td>
</tr>
<tr>
<td>Thursday, December 17</td>
<td>Final Examinations begin</td>
</tr>
<tr>
<td>Tuesday, December 22</td>
<td>Fall term ends; winter recess begins.</td>
</tr>
<tr>
<td>Date</td>
<td>Event</td>
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<tr>
<td>Friday, January 4</td>
<td>Final grades for fall-term courses due.</td>
</tr>
<tr>
<td>Wednesday, January 13</td>
<td>Spring-term Online Course Selection (OCS) begins</td>
</tr>
<tr>
<td>Tuesday, January 19</td>
<td>- Spring-term classes begin, 8:20 a.m.</td>
</tr>
<tr>
<td></td>
<td>- Spring Teaching at Yale Day: orientation for all new Teaching fellows</td>
</tr>
<tr>
<td>Thursday, January 28</td>
<td>- Final day to apply for a spring-term personal leave of absence</td>
</tr>
<tr>
<td></td>
<td>- The entire spring-term tuition charge or CRF will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a leave of absence effective on or before this date.</td>
</tr>
<tr>
<td>Friday, January 29</td>
<td>- Spring-term online course selection (OCS) closes. Final day for registration. A fee of $50 is assessed for course schedules accepted after this date.</td>
</tr>
<tr>
<td>Friday, February 12</td>
<td>One-half of the spring-term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a medical leave of absence effective on or before this date. The CRF is not prorated.</td>
</tr>
<tr>
<td>Tuesday, March 1</td>
<td>Deadline for students to notify departments of their intention to submit a dissertation for conferral of the Ph.D. in May. Final day to file petitions for May MA, MS or MPhil degrees</td>
</tr>
<tr>
<td>Friday, March 11</td>
<td>- Midterm.</td>
</tr>
<tr>
<td></td>
<td>- Spring recess begins, 5:20 p.m.</td>
</tr>
<tr>
<td></td>
<td>- One-quarter of the spring-term full-tuition charge will be canceled for students who withdraw from the Graduate School on or before this date or who are granted a medical leave of absence effective on or before this date. The CRF is not prorated.</td>
</tr>
<tr>
<td></td>
<td>- Teaching appointments will not appear on the transcripts of students who withdraw from the assignment on or before this date.</td>
</tr>
<tr>
<td>Tuesday, March 15</td>
<td>- Due date for dissertations to be considered by the Degree Committees for award of the Ph.D. in May.</td>
</tr>
<tr>
<td>Monday, March 28</td>
<td>Classes resume, 8:20 a.m</td>
</tr>
<tr>
<td>Friday, April 8</td>
<td>- Final day to change enrollment in a spring-term course from Credit to Audit or from Audit to Credit.</td>
</tr>
<tr>
<td></td>
<td>- Final day to withdraw from a spring-term course.</td>
</tr>
<tr>
<td>Friday, April 15</td>
<td>Readers’ reports are due for dissertations to be considered by the degree committees for award of the Ph.D. in May</td>
</tr>
<tr>
<td></td>
<td>Oral Proficiency Assessment for International students in all GSAS degree programs</td>
</tr>
<tr>
<td>Thursday, April 21</td>
<td>Final day to withdraw a degree petition for degrees to be awarded in May</td>
</tr>
<tr>
<td></td>
<td>Departmental Recommendation forms are due for candidates for May degrees</td>
</tr>
<tr>
<td>Thursday, May 5</td>
<td>Classes end, 5:20 p.m.</td>
</tr>
<tr>
<td>Friday, May 6</td>
<td>- Final Examinations begin</td>
</tr>
<tr>
<td></td>
<td>- Final day to submit Dissertation Progress Reports</td>
</tr>
<tr>
<td></td>
<td>- Final day to submit Petitions for Extended Registration and Dissertation Completion status for the subsequent year</td>
</tr>
<tr>
<td>Wednesday, May 11</td>
<td>Final Examinations end</td>
</tr>
<tr>
<td>Friday, May 13</td>
<td>Final grades for spring-term courses are due for candidates for terminal M.A. and M.S. degrees to be awarded at Commencement.</td>
</tr>
<tr>
<td>Sunday, May 22</td>
<td>Graduate School Convocation.</td>
</tr>
<tr>
<td>Monday, May 23</td>
<td>University Commencement.</td>
</tr>
<tr>
<td>Wednesday, June 1</td>
<td>Final grades for spring-term courses and full-year courses are due.</td>
</tr>
</tbody>
</table>
THE NATURE AND ROLE OF THE DOCTORAL DISSERTATION

Principles and Suggested Guidelines from the Executive Committee of the Graduate School

**Distinguishing characteristics of the doctoral dissertation**

The dissertation should demonstrate the student’s mastery of relevant resources and methods and should make an original contribution to understanding the field.

**Originality**

The originality of a dissertation may consist in the discovery of significant new information or principles of organization, the achievement of a new synthesis, the development of new methods or hypotheses, or the application of established methods to new materials.

The idea of a dissertation need not originate with the student, nor must the line of research followed by the student be exclusively of his or her own design. We take it for granted that the ideas of faculty advisors will often play a significant role in shaping the dissertation.

**Collaboration**

It is permissible for students to use research done in collaboration with others as the basis of their dissertations, and more than one student may obtain the Ph.D. by using a body of data derived from a common research project. In the physical and biological sciences such collaboration is now normal. Each student is expected, however, to write a separate dissertation based on an independent and original contribution to the research that was done collaboratively.

Since the dissertation is expected to embody an original contribution to scholarship by a particular individual, multi-authored dissertations are not permissible, and more than one student may not obtain the Ph.D. by using the same dissertation.

It may occasionally be appropriate to append to a dissertation the results of original, unpublished research by other scholars (with their permission). Such a contribution should normally appear as an appendix, and its authorship should be made clear both at the beginning of the appendix and in the table of contents of the dissertation.

**The use of previously published work**

Previously published work by the student may be used in the dissertation as long as it represents work done after the student was enrolled in the PhD program and as long as it has not been used previously to obtain another degree. It is not permissible, however, simply to append off prints to the dissertation. The previously published research must be rewritten in such a way that it fits logically into the structure of the dissertation. There is no restriction on the kind of previously published research that may be used, but if the results of the research appeared in a multi-authored article, the independent contribution by the author of the dissertation must, as always, be made clear.
Unity and diversity within the dissertation

Normally it is expected that a dissertation will have a single topic, however broadly defined, and that all parts of the dissertation will be interrelated. This does not mean that sections of the dissertation cannot constitute essentially discrete units. Dissertations in the physical and biological sciences, for example, often present the results of several independent but related experiments.

The question arises from time to time of whether or not a series of unrelated, or at least loosely related, article-length essays can be submitted as a dissertation in the Humanities and Social Sciences. This has seldom been done at Yale and is not encouraged. We feel, however, that the faculty should keep an open mind on the question and that a student who wishes to present a case for a dissertation of this sort should be given the opportunity to do so.

Length and time to completion

Given the diverse nature of the fields in which dissertations are written and the wide variety of topics that are explored, it is obviously impossible to designate an “ideal length” for a dissertation. Virtually everyone agrees, however, that a long dissertation is not necessarily a better one, and that quality of thought and clarity of exposition, not sheer bulk, are what value.

As was stated at the outset, we feel that the dissertation should demonstrate the student’s mastery of relevant resources and methods and make an original contribution to understanding in the field. We do not feel, however, that it should be the major scholarly achievement of the student’s entire lifetime as a scholar. The dissertation should help the student get launched on his or her professional career and not be a towering obstacle that delays the beginning of that career by many years.

Yale’s official period of candidacy is six years, and we feel that all students should be able to complete the Ph.D. within that period. Normally three, or at the most three and one-half, years should be devoted to the completion of pre-dissertation requirements (courses, examinations, selection of a dissertation topic) and the remaining time, i.e., two to three years, to the dissertation.

This means that students, faculty advisors, and Directors of Graduate Studies should give serious thought to the scale of the proposed dissertation topics. There should be a reasonable expectation that the project can be completed in two to three years.

* * * *

This working paper has been prepared by Jerome Pollitt, former Dean of the Graduate School, on the basis of deliberations by the Executive Committee of the Graduate School. Its members are:

Marie Borroff, Lampson Professor of English  
Leo Hickey, Professor of Geology and Geophysics and Biology  
George May, Sterling Professor of French  
Martha Constantine-Paton, Professor of Biology  
T. Paul Schulz, Brachman Professor of Economics and Demography  
H. Bradford Westerfield, Wells Professor of International Studies and Professor of Political Science

Also participating in the discussions were three Associate Deans of the Graduate School: Robert E. Bunselmeyer, David C. Spadafora, and Deborah G. Thomas.
TAXATION OF SCHOLARSHIPS AND FELLOWSHIPS

This is a summary of the federal and state tax treatment of scholarships, fellowships and assistantships. It has been prepared for distribution to students enrolled in the Graduate School. Please be aware that University staff members may not provide income tax advice or assistance to individuals. Since the tax laws are complex and may apply differently in individual circumstances, please consult your accountant or other tax advisor in order to ensure proper compliance. For additional information, you should read IRS Publication 970, Tax Benefits for Education, Section 1, Scholarships, Fellowships, Grants and Tuition Reductions available at http://www.irs.ustreas.gov/.

General Rule of Taxation

Under federal tax law, a scholarship or fellowship provided to a student in a degree granting program is not taxable if the entire fellowship amount is used to pay the costs of tuition, fees, books, equipment and supplies (required fees, books, equipment and supplies are limited to those specifically required of all students in a course).

Amounts in excess of these costs are taxable, as are any payments for services rendered such as the performance of research. Because the State of Connecticut income tax is based on taxpayer’s federal adjusted gross income, taxable portions of scholarships and fellowships as well as payment for services rendered are also subject to State of Connecticut income tax.

Withholding and Reporting

Scholarships and Fellowships

With several important exceptions described below, the University does not withhold federal or State of Connecticut income taxes from scholarship or fellowship stipends and is not required to report these stipends to the respective taxing agencies as income. Students are responsible for reporting to the IRS and the State of Connecticut Department of Revenue Services any portion of their awards that is properly taxable. Therefore, students who receive fellowships or scholarships should keep their award letters and receipts for tuition and required expenses in order to substantiate their taxable and/or nontaxable fellowship income.

Important: Students who are not subject to withholding may be required to file quarterly estimates tax payments with the International Revenue Service and the State of Connecticut. Failure to file may result in interest and penalty assessments.

Exceptions

International Students

For international students, the University and other grantors are generally required to withhold federal income taxes at a rate of 14% of that part of the award which is in excess of tuition, required fees, books, equipment and supplies. This provision applies to non-resident alien students who hold F, J, M or Q visas. Other international students may be subject to withholding at a rate of 30% of their stipends. Students may receive refunds of amounts in excess of taxes owed after they file appropriate federal and state tax returns.
Students should be aware of any tax treaties between the U.S. and their country of residence and, where applicable, may reduce or eliminate the required amount of federal income tax withholding by filing the appropriate forms with the University Tax Department located at 155 Whitney Avenue, second floor, Room 22. To schedule an appointment with the University Tax Department, please call 432-5530 or 432-5597 or email marisa.stevenson@yale.edu or daysi.cardona@yale.edu. We encourage you to visit the International Tax Office website at http://www.yale.edu/finance/tax/int_tax/index.html for more information regarding payments to international students. The University reports taxable fellowship and scholarship income paid to international student on a Form 1042-S, a copy of which is also sent to the student.

Teaching Fellowships

Most students are admitted to the Graduate School with the expectation that they will teach for some period of their awarded fellowship period. The University is obligated to withhold federal and state income taxes on the stipend paid for teaching or, in some cases, on a portion of the fellowship stipend paid during the fellowship period. The University reports taxable teaching stipend income to the IRS, the State of Connecticut and the student on a Form W-2.

Research and Assistantship Stipends

Research and Assistantship stipends are taxable income and the University withholds federal and state income taxes on these amounts. The University report taxable assistantship and research stipends to the IRS, the State of Connecticut and the student on a Form W-2.

Note; The IRS does no require the University to withhold Social Security taxes (FICA) on the earning of students who perform services while they are enrolled as at least half-time students. Payments to non-resident aliens who hold F-1, J-1, M-1 or Q-1 immigration status may also be exempt from FICA.

Personal Tax Considerations

As students assess the effect of federal and state tax law, they should keep in mind the personal exemption and standard deductions available to taxpayers. Generally, taxpayers whose income is below the combination of the standard deduction and the personal exemption pay no federal income tax. For the calendar year 2015, the federal standard deduction is $6,300 for single persons ($12,600 for married couples who file jointly) and the personal exemption is $4,000. However, if a student is eligible to be claimed as a dependent on another taxpayer’s tax return (e.g. parents) the student may not claim the standard deduction. In certain instances, a student may have an obligation to file a return even where no tax is due. A student may likewise be required to file a State of Connecticut tax return.

Other Resources

Federal and States if Connecticut tax forms as well as tax publications and instruction booklets can be obtained by contacting the following agencies:

<table>
<thead>
<tr>
<th>Internal Revenue Service</th>
<th>1-800-829-1040</th>
<th><a href="http://www.irs.ustreas.gov">www.irs.ustreas.gov</a></th>
</tr>
</thead>
<tbody>
<tr>
<td>CT Department of Revenue Services</td>
<td>1-800-382-9463</td>
<td><a href="http://www.ct.gov/drs/site/default.asp">http://www.ct.gov/drs/site/default.asp</a></td>
</tr>
</tbody>
</table>
GENETICS GRADUATE PROGRAM

Director of Graduate Studies (DGS) is responsible for the overall operation of the graduate program. The DGS ensures that academic requirements are met, advises students, communicates with faculty and the administration concerning the graduate program and individual students, and in consultation with the Steering Committee, implements changes in the graduate program. The DGS typically meets with all students in the program twice a year for in depth discussion of the program and obtain feedback from the students.

Genetics Graduate Program Registrar keeps the graduate student files and pre-doctoral training grant records, enters graduate student payroll, and provides administrative support to the students, the Director of Graduate Studies, the Steering Committee, the Admissions Committee, and the Program Director, Pre-doctoral Training Program. The Graduate Program Registrar also schedules the Department's Journal Club and the Graduate Students' Research-in-Progress.

Graduate Program Steering Committee comprises of both faculty and students appointed by the Director of the Graduate Studies Program. Its role is to review, on an ongoing basis, the operation of the graduate program, to discuss issues that arise concerning the program, and to recommend changes in the operation of the program. Students with general concerns about the graduate program or suggestions for improvement should contact the DGS or a member of the Steering Committee. All substantive issues will be discussed in addition by the full faculty.

Admissions Committee: Zhaoxia Sun (Director -Genetics), Daniel Colon-Ramos (Director- Cell Biology) and Valerie Horsley (Director-MCDB)

BBS: Anthony Koleske (785-5067), Professor of Molecular Biophysics and Biochemistry and of Neurobiology, is the Director of the Programs in the Biomedical and Biological Sciences (BBS) and is responsible for coordinating the various BBS tracks and the academic departments. He also serves to represent the interests of the BBS to the Graduate School.

Richard Sleight (432-2744), Associate Dean of the Graduate School (Biological Sciences), is the Graduate School official responsible for the graduate program in Genetics and is the appropriate individual to contact for issues related to the Graduate School.

Robert Harper-Mangels (432-2744), Assistant Dean of the Graduate School, assists Dean Sleight in his functions.

Dr. Barbara Kazmierczak (737-5062) is the Director of the MD/PhD program; individuals in this program or considering this program should consult with him or Cheryl DeFilippo, Associate Director (785-2103).

GENETICS DEPARTMENT ADMINISTRATION AND BUSINESS OFFICE (I-308)

<table>
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<tr>
<th>Position</th>
<th>Name</th>
<th>Phone</th>
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<tr>
<td>Chairman</td>
<td>Richard Lifton, M.D., Ph.D.</td>
<td>TAC S-341</td>
<td>737-4420</td>
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<td></td>
<td>Elizabeth Cappello</td>
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<tr>
<td>Administrator</td>
<td>Linda Chiaraluce</td>
<td>SHM I-308</td>
<td>785-2650</td>
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<tr>
<td>Assoc. Director of Finance and</td>
<td>Gabriel Pethick</td>
<td>SHM I-305</td>
<td>785-5408</td>
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<td>Operations</td>
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<td>Nicholas Balsamo</td>
<td>SHM I-308</td>
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<td>Accountants</td>
<td>Angelica Regalado</td>
<td>SHM I-308</td>
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<td>Matthew Ventura</td>
<td>SHM I-308</td>
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Financial Assistants
Peggy Stephens
SHM I-308 785-6966
Fernando Giron
SHM I-308 785-2650

Acting Assistant Administrator
Sonia Santana
SHM I-308 785-5403

Office Assistants
Sr. Administrative Assistant
Neltja Brewster
SHM I-308 785-2649

These offices support the work of all members of the Genetics Department. They maintain grant and personnel records, arrange for the purchase of supplies, secure the services of Physical Plant and Housekeeping, assist in the preparation of grant applications, provide secretarial service, and act as a general information center with regard to University policies and procedures.

GRADUATE SCHOOL OF ARTS AND SCIENCES, HGS

Dean
Lynn Cooley
432-2733

Associate Dean, Biological Sciences
Richard Sleight
432-2744

Assistant Dean, Biological Sciences
Robert Harper-Mangels
432-2744

Assistant Dean, Office of Diversity and Equal Opportunity
Michelle Nearon
436-1301

McDougal Graduate Student Center at the Graduate School
Director of Student Life
Lisa Brandes
432-BLUE 432-2583

Admissions Office
Robert Colonna
432-2749

(questions related to admission or readmission to the Graduate School)

Financial Aid Office
Jennifer Brinley
432-7980

Susan Wrzosek
432-2899

Questions concerning pay checks and fellowships
Graduate School Financial Aid Office
432-2739

Registrar, FAS
246 Church St.
432-2330

Deputy Registrar, Graduate School
246 Church St.
David Zupko
432-8649

(course schedules & changes; dissertation progress reports; grades; leave-of-absence, petitions for degrees;
petitions for extended registration; registration forms; SSN, address, and name changes)

Information Office 432-2770 or 2771
(general information; submission of petitions for degrees and dissertations)

MEDICAL SCHOOL OFFICES

Dean Dr. Robert Alpern
SHM C-203
785-4672

Deputy Dean for Academic & Research Affairs Carolyn Slayman
SHM I-202
737-1770

Associate Dean, Academic Development Merle Waxman
Ombudsperson, School of Medicine SHM L-202
785-4680

Assistant Dean of Multicultural Affairs Dr. Forrester Lee
15 York Streete
785-2917

COMBINED PROGRAMS IN THE BIOLOGICAL AND BIOMEDICAL SCIENCES (BBS)

Director Anthony Koleske
SHM CE31
785-5624

Associate Director John Alvaro
SHM L-205
785-3735

Assistant Administrative Director Bonnie Ellis
SHM L-203
785-5663

THE MD/PHD PROGRAM

Director Dr. Barbara Kazmierczak
TAC Ste S169B
737-5062

Associate Director (MD/PhD) Cheryl DeFilippo
ESH 319
785-2103

Registrar Susan Sansone
ESH 316
785-4403
OTHER UNIVERSITY OFFICES

Student Financial and Administrative Services (SFAS) 432-2700
(Bursar's Office, 246 Church St.)

International Students & Scholars Office 432-2305
(421 Temple Street)

International Center 432-2305

Night Student Security Transit Service 432-9255
432-6330

Graduate & Professional School Housing (420 Temple St) 432-2167

University Police
Communications Center, 101 Ashmun St. 432-4400
Administrative Offices, 101 Ashmun St.

Yale Visitor Center (149 Elm St.) 432-2300

Yale University Health Service/Yale Health Plan
(55 Locke Street)

Emergency (Acute Care) 432-0123

Student Health 432-0312

Mental Health & Counseling 432-0290

Pharmacy 432-0033
### Primary Faculty

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<th>Name</th>
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<tr>
<td>Allen E. Bale</td>
<td>Professor</td>
<td>SHM I-329D</td>
<td>785-7610</td>
</tr>
<tr>
<td>Kaya Bilguvar</td>
<td>Assistant Professor</td>
<td>300 Heffernan Drive West Campus</td>
<td>737-4919</td>
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<tr>
<td>Sidi Chen</td>
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<td>Lynn Cooley</td>
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<tr>
<td>Daniel DiMaio</td>
<td>Professor</td>
<td>SHM I-141B</td>
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<td>Antonio Giraldez</td>
<td>Professor/DGS</td>
<td>SHM I-142B</td>
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<tr>
<td>Valentina Greco</td>
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<td>SHM I-336B</td>
<td>785-5241</td>
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<tr>
<td>Marc Hammarlund</td>
<td>Associate Professor</td>
<td>BCMM 436E</td>
<td>737-4581</td>
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<tr>
<td>Arthur Horwich</td>
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<td>BCMM 145</td>
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<tr>
<td>Natalia Ivanova</td>
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<td>AMISB 220/327D</td>
<td>785-5957</td>
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<tr>
<td>Kenneth Kidd</td>
<td>Professor</td>
<td>SHM I-342B</td>
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<tr>
<td>Smita Krishnaswamy</td>
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<td>SHM I-336A</td>
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<tr>
<td>Peining Li</td>
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<td>WWW 333</td>
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<td>Janghoo Lim</td>
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<td>BCMM 454C</td>
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<td>Jun Lu</td>
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<td>AMISB 237C</td>
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<tr>
<td>Maurice Mahoney</td>
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<td>WWW 330A</td>
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<tr>
<td>James Noonan</td>
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<td>In-Hyun Park</td>
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<td>AMISB 214J</td>
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<td>Valerie Reinke</td>
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<td>SHM I-336C</td>
<td>785-5228</td>
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<td>Curt Scharfe</td>
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<td>785-5827</td>
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<td>Margretta Seashore</td>
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<td>Carolyn Slayman</td>
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<td>Michele Spencer-Manzon</td>
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<td>Zhaoxia Sun</td>
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<td>Scott Weatherbee</td>
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<td>Sherman Weissman</td>
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<td>Andrew Xiao</td>
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<td>Tian Xu</td>
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<tr>
<td>Hui Z. Zhang</td>
<td>Assistant Professor</td>
<td>WWW 318</td>
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### Secondary Faculty

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<td>Susan Baserga</td>
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<td>Martina Brueckner</td>
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<td>FMP 426</td>
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<tr>
<td>Keith Choate</td>
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<td>HRT 608B</td>
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<tr>
<td>Chris Cotsapas</td>
<td>Assistant Professor</td>
<td>300 George St. 353H</td>
<td>737-2896</td>
</tr>
<tr>
<td>Patrick Gallagher</td>
<td>Professor</td>
<td>LCI 401</td>
<td>688-2896</td>
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<tr>
<td>Joel Gelernter</td>
<td>Professor</td>
<td>VAMC Bldg 2 VA116A2</td>
<td>932-5711 X3590</td>
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<tr>
<td>Peter Glazer</td>
<td>Professor</td>
<td>HRT 140A</td>
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<tr>
<td>Jeff Gruen</td>
<td>Professor</td>
<td>464 Congress Avenue</td>
<td>737-2202</td>
</tr>
<tr>
<td>Murat Gunel</td>
<td>Professor</td>
<td>TMP 4/TAC S-341B</td>
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<tr>
<td>Karen Hirschi</td>
<td>Professor</td>
<td>300 George St 7FI</td>
<td>737-4533</td>
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<tr>
<td>Mustafa Khokha</td>
<td>Associate Professor</td>
<td>FMP 425 (LCI 305)</td>
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<tr>
<td>Haifan Lin</td>
<td>Professor</td>
<td>AMISB 237</td>
<td>785-6215</td>
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<tr>
<td>Arya Mani</td>
<td>Associate Professor</td>
<td>300 George St. 759K</td>
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<td>Michael Nitabach</td>
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<td>Nenad Sestan</td>
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<td>SHM C-323C</td>
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<td>Gerald Shadel</td>
<td>Professor</td>
<td>BML 371</td>
<td>785-2475</td>
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<td>Steven Somlo</td>
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<td>TAC S-369A</td>
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<td>Joann Sweasy</td>
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<td>HRT 313D</td>
<td>737-2626</td>
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<td>Peter Tattersall</td>
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<td>CB 462A</td>
<td>785-4586</td>
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<tr>
<td>Hongyu Zhao</td>
<td>Professor</td>
<td>LEPH 201A</td>
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1st Year Students, BBS/MCGD Track:

**GENETICS GRADUATE STUDENTS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Lab/Department</th>
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<tr>
<td>Andrew Adams</td>
<td>Gruen Lab, Pediatrics</td>
<td>464 Congress Ave.</td>
<td>737-2202</td>
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<tr>
<td>Evan (Hanwen) Bai</td>
<td>Gunel Lab, Neurosurgery</td>
<td>TAC S341B</td>
<td>737-2096</td>
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<tr>
<td>Ashley Bonneau</td>
<td>Giraldez Lab</td>
<td>SHM I-147</td>
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<td>Beatrice Monica Bowen</td>
<td>Cho Lab, Pediatrics</td>
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<td>737-1354</td>
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<td>Samara Brown</td>
<td>Greco Lab</td>
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<td>785-2928</td>
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<td>Henry (Shun Hang) Chan</td>
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<td>Brandon Dunn</td>
<td>Xu Lab</td>
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<td>Emily Dutrow</td>
<td>Noonan Lab</td>
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<td>Joe (Samuel) Endicott</td>
<td>Brueckner Lab, Pediatrics</td>
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<td>Evan Geller</td>
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<tr>
<td>Elizabeth Genne-Bacon</td>
<td>DiLeone Lab, Psychiatry</td>
<td>CMHC -34 Park St W305</td>
<td>974-7684</td>
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<tr>
<td>Julianne Gerdes</td>
<td>Cooley Lab</td>
<td>SHM I-339</td>
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<td>Kyle Gettler</td>
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<td>Kylia Goodner</td>
<td>DiMaio Lab</td>
<td>SHM I 141</td>
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<tr>
<td>Christian Harman</td>
<td>Flavell Lab, Immunobio</td>
<td>TAC S 560</td>
<td>785-5383</td>
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<td>Erin Heim</td>
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<tr>
<td>Charles Hernandez</td>
<td>Ivanova Lab</td>
<td>AMISB 220</td>
<td>785-5957</td>
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<tr>
<td>Jiaqi Jin</td>
<td>Kluger Lab, Pathology</td>
<td>300 George St. 5th Fl</td>
<td>737-6262</td>
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<td>Timothy Johnstone</td>
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<td>Ronit Kaufman</td>
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<td>Alison Kochersberger</td>
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<td>Davis Li</td>
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<td>Kaixuan Lin</td>
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<td>Alexander Lin-Moore</td>
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<td>Edward Marsh</td>
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<td>Catherine McManus</td>
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<td>KaiLin Mesa</td>
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<tr>
<td>Laura Beth Moore</td>
<td>Kyriakides Lab, Pathology</td>
<td>AMISB 301C</td>
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<td>Cristiana Pineda</td>
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<td>Lu Lab</td>
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<td>737-3426</td>
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<td>Santiago Salazar</td>
<td>Strittmatter Lab</td>
<td>BCMM 436</td>
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<td>Natasha Shylo</td>
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<td>Michael Sierant</td>
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<td>TAC S341</td>
<td>737-1599</td>
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<tr>
<td>Michelle (Jae Eun) Song</td>
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<td>BML 316</td>
<td>785-2525</td>
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<td>Parker Sulkowski</td>
<td>Glazer Lab</td>
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<td>737-2787</td>
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<td>Audrey Turchick</td>
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<td>Zheng Wu</td>
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<td>Yichong Zhang</td>
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<td>Xianglong Zhu</td>
<td>DiLeone Lab</td>
<td>CMHC -34 Park St W305</td>
<td>974-7684</td>
</tr>
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</table>

**MD/Ph.D. Students**

<table>
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<tr>
<th>Name</th>
<th>Lab/Group</th>
<th>Building</th>
<th>Phone</th>
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</thead>
<tbody>
<tr>
<td>Jonathan Levinsohn</td>
<td>Choate Lab, Dermatology</td>
<td>HRT 608B</td>
<td>737-3583</td>
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<td>Young Lim</td>
<td>Choate Lab, Dermatology</td>
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<tr>
<td>Samuel Sondalle</td>
<td>Baserga Lab, MB&amp;B</td>
<td>SHM C-114</td>
<td>785-2984</td>
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<td>Gregory Stachelek</td>
<td>Glazer Lab, TherRad</td>
<td>HRT 316</td>
<td>737-2787</td>
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<tr>
<td>Durga Thakral</td>
<td>Lifton Lab</td>
<td>TAC S341</td>
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<tr>
<td>Andrew Timberlake</td>
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<td>Mark Youngblood</td>
<td>Gunel Lab, Neurobio/Genetics</td>
<td>TAC S341B</td>
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<td>Brian (Bixiao) Zhao</td>
<td>Lifton Lab</td>
<td>TAC S341</td>
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- **Fax:** 608-262-0984
- **Email:** labadmin@biochem.wisc.edu
- **Website:** [biochem.wisc.edu](http://biochem.wisc.edu)

**Additional Resources**

- [University of Wisconsin-Madison](http://www.wisc.edu)
- [Department of Biochemistry](http://biochem.wisc.edu)
- [Biochemical Research Lab](http://biochem.wisc.edu/labs)

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**Updates:**

- Last updated: [last update date]
- Next update: [next update date]