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Thanks,

Doug Marchuk, Director
Allison Ashley-Koch, Co-Director & Director of Graduate Studies (DGS)
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CONTENTS

FIRST YEAR IN THE UPGG PROGRAM
   Responsible Conduct of Research
   Coursework
   Registration
   Laboratory Rotations
   Recruitment
   Track Decision/ Thesis Advisor
   Summer

SECOND YEAR IN THE UPGG PROGRAM
   Coursework
   Research
   Finances
   Preliminary Exam
      Choosing the Committee
      Pre-prelim meeting (optional)
      Written Document
      Oral Defense
   Summer

THIRD AND SUCCEEDING YEARS IN THE UPGG PROGRAM
   RCR requirement
   Courses
   Finances
   Research
   Time Off/Vacation
   Working in the Lab and Being a Good Citizen

ONGOING REQUIREMENTS
   Annual Committee Meeting
   Advisory Meeting
   Annual Student Retreat
   Teaching experience/TA
   Preparing for the Future

FINAL YEAR IN THE UPGG PROGRAM
   Requirements to graduate with a PhD in UPGG
      Credits
      Final committee meeting
      Publications
Change of committee chair
Scheduling the defense
Written document/thesis
Oral presentation/defense
After the Defense
Forms
Revision to the thesis document

**DEGREE TRACKS** (INCLUDES INFORMATION AND REQUIREMENTS FOR PRELIMINARY AND FINAL EXAMS)
- Written Dissertation
- Oral PhD Thesis Defense
- Terminal Masters Degree

**OTHER INFORMATION**
- Changing Labs
- Students transferring to UPGG from other programs

**UPGG STUDENT COMMITTEE**

**INFORMATION FOR INTERNATIONAL STUDENTS**
**FIRST YEAR IN THE UPGG PROGRAM**

**Welcome to UPGG!** Briefly, your first year will be your opportunity to sample the diversity of laboratories in which you can ultimately pursue your dissertation research as well as build the course training that you need to become knowledgeable in Genetics and Genomics.

**RESPONSIBLE CONDUCT OF RESEARCH:**

ALL matriculating PhD students at Duke University are required to complete 12 or 18 hours in RCR orientation. This reflects our expectation that every doctoral candidate will be well qualified to address the growing ethical challenges that arise when teaching or conducting research. The UPGG program follows the requirements for the BASIC BIOMEDICAL Track, requiring 18 hours, which is satisfied by participating in the Graduate School’s retreat at Beaufort, NC. This is not optional, and requires preregistration.

Additionally, each Ph.D. student must complete six (6) additional hours of RCR training during his or her first three years of study. This requirement can be met by attending three RCR Forums (2-hour workshops, GS311) offered each Fall and Spring on a wide range of topics. Registration for these is done through the graduate school website, NOT through ACES. Periodic notices will be sent out regarding these class options.

**NEW: 3rd Year RCR course:** A new, 4 credit-hour RCR course is required of all third year graduate students as a sequel to the first year RCR Beaufort course. The course will be held at a local off-campus location every May/June for students at the end of their 3rd year of graduate school. Students who have not completed their PhD by the end of their 7th year and have not retrained since taking the 3rd year course, will be required to retake the course. This policy will ensure that all students are retrained at least every four years, which is an NIH requirement. Overall, students are required to have 18 hours of RCR training: 12 hours in their first year at the Beaufort weekend retreat, 2 hours of an “elective” forum on a variable topic selected by the student and finally 4 hours of non-elective 3rd year training.

**Topics and faculty:** The 3rd yr RCR session has fixed topics and format. There will be two didactic 1 hour lectures; one on scientific misconduct and its relation to questionable research practices and a second on interpersonal relationships in science such as authorship, mentor/mentee relations, responsibility of collaborators, distribution of reagents, etc. These are among the NIH-recommended RCR topics and were covered at the Beaufort RCR retreat. Each didactic lecture will be followed by a 1 hour small group (8-10 students) session.

**COURSEWORK IN THE FIRST YEAR:**

Most major coursework requirements are pursued and satisfied in your 1st year, except as specified. All UPGG students must take and pass the following:
1. **UPGEN 778** Genetic and Genomic Approaches to the Solution of Biological Problems (fall semester)
   This modular course is required in Years 1 and 2 so that 12 modules in total are taken. Six modules are taken per year. Three modules in Quantitative Genetics and Genomics and three modules in Model Organism Genetics and Genomics are required. The 6 required modules can be spread out over the course of Years 1 and 2.

2. **UPGEN 701** Topics in Genetics and Genomics (full semester, required both fall and spring semesters)

   Additional coursework for which enrollment is required (both fall AND spring) include:

3. **UPGEN 716** Friday student research seminar. You will not be required to give a presentation in this course during your first year.

4. **UPGEN 750** Tuesday seminar and the Distinguished Lecture Series (required for years 1-3; this is a companion course to UPGEN 301)

5. Electives: 6-8 credit hours in full-semester courses or minicourses on any aspect of genetics. Each year the Director of Graduate Studies (DGS) for the UPGG and the student advisory committee (usually the Director and Co-Director) will determine which courses may be used to fulfill this requirement. You will be required to get a PIN from the Program Coordinator to register for this course.

***By the end of the second year, all UPGG students must have a minimum of 24 graded credits. They must also earn a B- or higher in classes 1-4 above. The student advisory committee, which is composed of the DGS, Director, Co-director, and 2-4 faculty members of the UPGG, has the authority to add or waive course requirements on an individual basis. If a student has previous coursework that might allow him/her to opt out of a required course, he/she must take the next higher related course in order to complete the UPGG requirement.***

***REGISTRATION***:

All first year students will meet with the student advisory committee prior to registering for classes for the first year. You will meet again with the DGS and/or advisory committee near the end of the first semester to choose Spring semester courses.

To register for courses: You will be automatically registered for CTN for the Fall and Spring Semesters, but it is important that you verify this process has actually happened. If you do not see CTN on your Fall and Spring list of courses, please let the DGS/DGSA know immediately. If you fail to register before the end of the add/drop period, you will be unable to fulfill your requirements. **EVERY SEMESTER**, registration for Continuation (CTN) will be required, including manual registration for Full Continuation (CTN) in summer.
RECRUITMENT

First year students are important contributors to recruitment of new students. All first years are expected to participated in recruitment weekends held in February. This involves working with the student recruitment committee and the Admissions committee to plan recruitment activities, and acting as a host for a recruit.

LABORATORY ROTATIONS IN THE FIRST YEAR:

Purpose of rotations: It is important to take full advantage of these laboratory rotations. They fulfill several purposes by providing: 1) exposure to different types of research and scientific approaches, 2) practical experience that will help in deciding the laboratory in which you will want to pursue your PhD, 3) provide the lab members and PI with an opportunity to consider a potential 4 to 5-year working relationship with you.

Choosing rotation labs: Students must perform at least three different laboratory rotations during the first year that are each 10 weeks long. Rotations with faculty members of UPGG are strongly encouraged. Students are encouraged to explore areas of research within UPGG that they may not have thought of prior to entering the program. Your classes during the first semester are an important opportunity to meet different professors and to learn about research topics that might not be on your immediate radar screen. If you choose to rotate with a non-UPGG member, prior written approval from the DGS is required. There are over 100 UPGG faculty, representing a broad spectrum of rotation experiences. However, if you decide to join the lab of faculty member who is not part of the UPGG faculty, be aware that you are required to join the graduate program of the faculty member’s primary departmental appointment.

Rotation reports: At the beginning and end of each laboratory rotation, you must submit rotation evaluation form to the UPGG Program Coordinator documenting the lab in which you performed your rotation and a description of the work you pursued and completed while there. The forms must be completed by you and the rotation mentor within 2 weeks after completion of the rotation.

CHOOSING A THESIS ADVISOR

Students will choose a thesis advisor, a department, and degree track (see section entitled "DEGREE TRACKS") at the end of the third rotation (usually by early summer of the 1st year). Students are welcomed (and encouraged) to discuss their choices with the DGS and other UPGG leadership if they desire advice or feedback. By September 1 of the third semester (2nd year), all students are required to have made these choices and turned in their Thesis Lab Affiliation form (found on the UPGG website under “Useful Forms”) to the DGSA. The completed form should be routed through your advisor, the department chair and/or UPGG DGS, and the Graduate School. Once obtained bring the form to the DGSA.
SUMMER: Be sure to register for full continuation (CTN) over the summer.

SECOND YEAR IN THE UPGG PROGRAM

During the 2nd year (third and fourth semesters at Duke), UPGG graduate students complete most of the remaining course requirements during this year. The highlights for this year include:

1. Selection of advisor and degree track
2. Selection of preliminary exam/thesis committee members by December of 3rd semester
3. Preliminary Examination taken between the start of the 4th semester (SPRING, 2nd year) and before the end of the 5th semester (FALL, 3rd year)

COURSEWORK: By the end of the 2nd year, every UPGG student should have a minimum of 24 graded credits.

In addition to CTN, second-year students are required to register and enroll in:

1. UPGEN 778: Genetic and Genomic Approaches to the Solution of Biological Problems (fall semester, 6 modules)
2. UPGEN 704: Writing Grant Proposals (full semester, fall of Year 2)
3. UPGEN 716: Friday student research seminar. You will be required to give a presentation during Year 2 or at the Annual Student Retreat.
4. UPGEN 750: Tuesday seminars and the Distinguished Lecture Series
5. Any elective you choose.

RESEARCH: It is expected that second year PhD students will establish and pursue dissertation-related research in their selected laboratory. This research should be both novel and at least somewhat independent. If you are concerned with your chosen lab, first talk with your advisor. If you are unable to resolve the concerns, then see the DGS.

FINANCES: UPGG students are supported by the program through the end of their second year. Following the second year, one must be supported by TA-ships, your PI’s grants, one’s own fellowship, etc. The Program Coordinator will remind advisors and/or, if Track II, department staff of this before the end of the second year so appropriate plans can be made. The selection of a lab for one’s PhD research must be discussed with the potential PI/faculty advisor and approved by the Chair and/or Business Manager of the department to which the PI belongs.
PRELIMINARY EXAM COMMITTEE

Second year students must select a preliminary exam/thesis committee. Specific rules on the content of the committee (e.g., number of UPGG faculty) are covered in the section entitled "DEGREE TRACKS". You will need to select a minimum of four faculty, including your advisor. All of these faculty can be UPGG faculty. The selection of the “minor area” member merely represents the faculty member whose research expertise overlaps the least with the prelim/thesis project area. A student’s preliminary exam committee may be different than the thesis committee if the project warrants addition or exclusion of certain faculty members based on expertise or development of the project. However, please note that any committee changes must be approved by the Graduate School. Committee change forms are submitted through the DGSA.

Preliminary exam/thesis committees must be chosen by December of the 2nd year (the third semester in the program) in order meet Graduate School deadlines that will permit prelims to be held starting in January of the fourth semester. UPGG requires that students hold their preliminary exam during the second semester of the 2nd year and no later than the end of the first semester of the 3rd year. Exceptions should be justified by the student in writing and will require approval by the DGS and the Graduate School.

PRELIMINARY EXAM:

Timing of Prelim: The preliminary exam should be taken between the start of the fourth semester (spring of the 2nd year) and no later than end of the fifth semester (fall of the 3rd year) in graduate school. The exam must be taken between the first and last class days of the semester, and not during finals week or between semesters. It is important then to have one’s committee selected by December of the 2nd year (third semester) and one’s prelim date scheduled for sometime in the fourth or fifth semester. The preliminary exam, consists of a specifically focused written proposal and a general oral exam. Extensive amounts of preliminary data are NOT required.

Purpose of Prelim: A key point for all to remember is that the preliminary exam is more about the student and less about the document. An important measure of a student’s ability to think logically and to exhibit his/her knowledge gained from coursework and rotations in the 1st and 2nd years. The examination committee will determine if the student is adequately prepared to advance to PhD candidacy and to embark on novel research under the guidance of the advisor/mentor. If a student has generated preliminary data from his/her thesis project at this point, it is considered a bonus, but not an absolute requirement. During the prelim, the student will be tested on the ability to think clearly and logically, to articulate knowledge of genetics and genomics in a professional and coherent manner, and to present reasonable ways of approaching and investigating various scientific problems and concepts, both in a written and oral context.

Committee Approval Prior to Exam: The Graduate School requires that the Committee
Approval form be submitted and approved at least two months before the scheduled preliminary exam. Please keep in mind that this process is not instantaneous, so it is important to email your committee composition to the DGSA at leslie.mavengere@duke.edu at least three months before the preliminary exam. To ensure that all students meet the deadlines for committee approval through the Graduate School, the committee should be selected and the committee approval form be submitted to Leslie by December of the 2nd year (the third semester). The DGS must be notified if a student is unable to meet the deadline.

The DGS will approve the electronic form and submit it to the Graduate School. Once approved by the Graduate School an email will be sent to you by the DGSA with the electronic version of the form. The Graduate School has declared that there will be no exceptions to this rule, and preliminary examinations held in violation of this policy will be declared invalid and need to be repeated. The program administration will remind students of impending deadlines, so that no student will be in violation of Graduate School policy.

OPTIONAL --- PRE-PRELIM MEETING – OPTIONAL

Students have the option of holding a pre-prelim meeting before the actual preliminary exam meeting. The intent of this meeting is to sort out questions about the specific aims of the preliminary exam proposal. This meeting should last no more than 1 hour, and the student should provide a 1 or 2-page written synopsis of his/her specific aims for the research proposal and an updated CV. The student may also wish to present a 15-20 minute PowerPoint presentation outlining the proposal, but this should NOT be an exhaustive seminar. The pre-prelim will enable your committee to see a first draft of your ideas and offer suggestions and comments on the general concept of the proposal.

The committee will not “grill” you at this meeting. This is a friendly meeting/discussion. The intent is for the group to offer suggestions about the specific aims to help focus the proposal and to identify areas of knowledge for which the student should enhance before the actual prelim exam. Once the general outline is approved, students should begin preparing the document.

WRITTEN DOCUMENT:

Students are encouraged to begin writing after formation of the committee, since the proposal should be written while simultaneously being productive in the lab. Part of the learning process is determining how to balance writing while also working at the bench. This often requires working on the document in the evenings and on weekends. Suspending lab work for several weeks to months in order to write one’s prelim document is discouraged.

The written proposal focused on the topic of the student’s thesis research should be handed out to the thesis committee two weeks before the oral exam date. Committee members often serve on up to 25 different prelim and thesis committees, so remember to be courteous and provide the document at least 2 weeks before the exam date.
CONTENT OF PROPOSAL: The written proposal could be in the format of an R01 or NRSA-like NIH grant (10-12 pages long, single spaced, excluding Literature Cited) or an NSF grant proposal (8-12 pages long, single spaced), as appropriate based on the area. As is typical in a research grant proposal, the major content areas could include Specific Aims, Approach (including Significance and Innovation), Research Design and Methods (including Preliminary Data), timeline, and Literature Cited. The purpose of utilizing this format is to give students an opportunity to organize their thoughts in a manner that will have practical ramifications for them throughout their career: specifically, the students will gain experience in the logical, written presentation of their work. Thus, writing style, i.e. the clear and orderly presentation of material as well as adherence to acceptable standards of written English, is a key component of the proposal. All UPGG students are required to take UPGEN 704 (Grant Writing), and thus will be familiar with writing an NIH-style proposal. The written proposal will be the student’s own work within the framework of the existing broader project in the PI’s lab, but will no doubt reflect discussion and planning between the student and his or her thesis advisor.

ORAL EXAM:

The oral portion of the preliminary exam will consist of a short presentation (15-20 minutes) by the student, general questions, usually arising from but not limited to the material on the written proposal, and in-depth discussion with the student on the research proposal. The student and advisor should identify a chair for this oral exam.

CHAIR OF THE COMMITTEE: The thesis advisor will be present as an observer but cannot serve as chair or ask leading questions during the oral exam. The thesis advisor will participate in the deliberations regarding the committee's evaluation and recommendations and will also participate in the secret vote to determine the decision.

WHAT TO EXPECT AT THE EXAM: Preliminary exam oral sections typically take a few hours. The format of the oral portion is at the discretion of the advisor and committee members and should be established at the pre-prelim meeting or at the start of the preliminary exam. A typical format starts with a brief presentation (15 minutes) by the student of the proposed research, perhaps including visual aids. The committee will then ask questions both related to the proposed work and questions of which you should be knowledgeable as a scholar in their chosen field of study.

The preliminary exam is an important measure of a student’s ability to think logically and to exhibit his/her knowledge gained from coursework and rotations in the 1st and 2nd years. Its ultimate purpose is to define the limits of understanding of the student, so do not panic if you do not know the answers to some of the questions asked. While sometimes perceived as stressful, these exams are intended to be constructive, in that areas of strength are highlighted and areas of weakness are identified so that they can be remedied. The examination committee will determine if the student is adequately prepared to advance to PhD candidacy and to embark on novel research under the guidance of the advisor/mentor.

WHAT TO EXPECT AFTER THE EXAM: After the exam, bring the prelim report form to the UPGG
Office. The results are reported in your student file and will then be taken to the Graduate School. The form for this purpose is available from the UPGG website. The only options are "Pass", "Fail", and "Fail with Recommendation for Reexamination". There is no "Conditional Pass" option. The committee should report the result of the preliminary exam on the form provided by the Graduate School (available from the UPGG website). The original is sent to the Graduate School and a copy retained in the UPGG office.

**CHANGES TO THE DOCUMENT:** Should the thesis committee decide that modifications of the written proposal are required, the student should seek editing assistance from the thesis advisor, thesis committee members, and/or other appropriate personnel (e.g., more experienced students, post-doctoral fellows, etc.).

At the end of the prelim, the committee will complete the official assessment/progress form to offer feedback on the student’s written and oral abilities and aims and scope of the proposed research. Note that this form can be downloaded from the UPGG website and must be completed at EVERY subsequent committee meeting. The student and advisor should meet privately to discuss the comments from the committee and determine an action plan for the coming year. Within one week after the meeting, this evaluation form should be submitted to the DGS/DGSA following the format discussed in "DEGREE TRACKS".

**SUMMER:**

Be sure to register for full continuation (CTN) over the summer if in the UPGG Track.
THIRD AND SUCCESSIVE YEARS IN THE UPGG PROGRAM

Graduate students who enrolled through the UPGG program focus on pursuing their research in the third and succeeding years. All student must complete the preliminary examination by the end of the fifth semester (FALL OF THE THIRD YEAR).

REQUIREMENT: Remember to complete the mandatory 3rd year RCR training.

COURSES: Although students past the second year are not required to register for UPGEN 716 (the Friday student research seminar) and UPGEN 750 (which includes attendance at Tuesday seminars and the Distinguished Lecture Series), they are expected to attend and participate in these regularly. All students must continue to register for CTN.

FINANCES: When starting your third year, you will change from non-comp payroll to faculty-staff payroll. A letter will be sent to you, your advisor and your departmental payroll representative. Please make sure that you also touch base with your departmental business manager to discuss and learn about your payroll status. You are free to consult with the UPGG Program Coordinator to verify that you are being paid properly.

RESEARCH: After the passing the prelim, the student’s priority is performing high quality research and being productive at the lab bench. Becoming an excellent scientist requires focus, motivation, determination, and resilience, but most of all, it requires time and commitment to the lab and the research project. This will likely mean committing at least 50 hours a week to laboratory work, although this may vary by lab. It is not uncommon or unreasonable for students to work past 5pm and on weekends. Effort and expectations should be discussed with your PI, and communication is key to understanding and meeting these expectations. Remember, each student is part of a larger research enterprise that was there before s/he arrived and will continue after s/he graduates. Labs are usually funded by multiple agencies or funding sources that demand accountability for the money given to support salaries, stipends, and research activities. This accountability extends from the PI to every member of the lab, including students. Thus, UPGG students are expected to be productive and to contribute scientifically to their lab group and more broadly to the respective research areas/fields. This will be difficult to do when one applies only minimal or “just enough” effort.

TIME OFF: Graduate school requires maturation past an undergraduate mindset and framework. Fall and spring breaks are intended for undergraduate students. As students paid from NIH funded (training) grants and thus accountable to the NIH, the expectation is that the graduate students now have “real jobs” and are expected to come to lab daily and to be productive. Time off should be formally requested from the advisor/mentor. It is not appropriate to simply tell one’s advisor when one is taking time off. Each graduate student is considered an integral part of the lab and consequently, his/her contribution to the lab will be impacted by absences. Officially, two weeks of time off/vacation have been mandated by
the Graduate School. However, any time in excess of two weeks must be requested by the student (ask, not tell) and approved by the PI/advisor.

WORKING IN THE LAB AND BEING A GOOD CITIZEN: When a student joins a lab, s/he is now a part of the lab mission and operation. Each student should make concerted effort to become integrated into the lab workings and to contribute positively to the lab productivity and daily procedures. Students who simply “occupy” a lab, give little thought or interest to those around them, and mainly take from the lab experience diminish opportunities to grow and mature as a scientist and eventual group leader. Students are encouraged to purposely look for and undertake actions/activities that will benefit the lab operations and establish him/her as an exemplary lab citizen. Remember, postdoctoral mentors are quite interested in the lab behaviors exhibited by potential candidates, and these qualities are often included in letters of reference written by PhD mentors.

ONGOING REQUIREMENTS:

ANNUAL COMMITTEE MEETING: **Students are responsible to schedule and hold yearly meetings with their thesis committees.** Failure to do so will prevent you from being allowed to register. Two to five days prior to the committee meeting, the student should send each committee member a 1-3 page written summary/progress report that states the Specific Aims of the project, any changes to the Aims from the previous Aims (as articulated at the prelim or a previous committee meeting), progress made under each aim, and the experimental plan for the coming year. Progress should not simply be a list of experiments that were done, but an interpretation of the data and what it means in the larger context of the project. In addition, all students should submit to the committee an updated CV that contains publications, presentations at meetings, and other appropriate accomplishments from the past year.

Student may also present their research progress via a powerpoint presentation (15-20 minutes), leaving ample time for the committee to ask questions and offer suggestions for future work. Note, the powerpoint presentation should not be done in lieu of a written document. Within one week after the meeting, a committee report/evaluation form should be submitted to the DGS/DGSA following the format discussed in "DEGREE TRACKS". (Report form can be found on the UPGG website). The student and advisor should meet privately to discuss comments from the committee and agree on an action plan for the coming year.

**ADVISORY MEETING:** You are encouraged to meet with both the DGS and Program Coordinator informally at least once per year. This is a good way of getting an "outside perspective" on progress, programmatic issues, and getting some additional career advice. In addition, it allows program leadership to stay abreast of each student’s progress and to offer help or advice as needed.
ANNUAL UPGG STUDENT RETREAT (SPRING): Students are expected to attend and participate in the yearly retreat, organized by a committee of students and held over a weekend usually in May at either the beach or the mountains. The retreat is a privilege extended to the students and is intended to provide the UPGG student community with an opportunity to showcase student research projects and progress, as well as to strengthen scientific and social interactions amongst the group.

Format of the retreat: The retreat includes several scientific sessions composed of multiple 15-minute talks given by students ranging from all years in the program (with the exception of first year students). Social activities are interspersed among the scientific sessions. The retreat is an excellent opportunity for the first year students to become acquainted with the larger student body and vice versa. The student committee typically will invite three faculty members to attend the retreat. These can be either new or established UPGG faculty with which the students wish to become more familiar or to have additional interactions.

TEACHING/TA OPPORTUNITIES: UPGG students who entered the program prior to 2011 (irrespective of track) are required to TA at least one genetics-oriented course (undergraduate or graduate). This TA-ship must be approved by the DGS or Director/Co-Director for course content and TA role (e.g., more than just xeroxing). We encourage you to fulfill this requirement after the prelim but before the final year (i.e. in spring of 3rd year or 4th year).

The TA experience is intended to be a quality educational experience in which the student does actual teaching in addition to other course-related activities, such as creating and/or grading homework, problem sets, exams, or other written assignments. At the end of the TA, the student should submit a 1 page (minimum) written summary of the activities that s/he were involved in during the course.

For those students who are interested in gaining additional teaching experience beyond the TA, there are a number of teaching options available. Naturally, these experiences require more time and effort and should not detract from the student’s research time. Students are encouraged to discuss their teaching objectives with their mentor/advisor and to design a mutually acceptable plan to incorporate training in teaching while simultaneously maintaining high research standards and productivity. Be aware that teaching hours during the workday will likely necessitate extra hours in the laboratory at night or on weekends.

Duke University offers more formal training that goes beyond the typical TA experience of grading exams and holding review sessions. In addition, a more involved TA experience is possible in a number of undergraduate introductory labs. If you are interested in a TA position in the Biology Department, contact Anne Lacey (aslzoo@duke.edu) at the beginning of the semester before you want to TA. Here are other options to enhance your teaching experience:
1) **Preparing Future Faculty**: This is a part of a national initiative to help prepare students for an academic career. Students must apply to the program as only 25-30 fellows are accepted each year and preference is typically given to students who have already taken a teaching class. Requirements include mentorship, site visits, workshop attendance, self-evaluation, and teaching portfolio. For more information contact Doug James at douglas.james@duke.edu or visit: http://gradschool.duke.edu/prof_dev/pff/

2) **Certificate in Teaching College Biology**: This program is part of the Biology Department and has a goal of enhancing professional development for a variety of academic careers. Requirements include mentorship, coursework, practical teaching experience, teaching evaluation, and teaching portfolio. Contact Julie Reynolds at julie.a.reynolds@duke.edu or visit http://www.biology.duke.edu/teachcert/index.html.

3) **Teaching IDEAS Workshops**: These workshops range in topics from active classroom learning to technology in the classroom. They are offered throughout the academic year and usually require advance registration. Visit http://gradschool.duke.edu/prof_dev/t_ideas2/index.php or pay close attention to emails throughout the year as the program administrator often sends out information about these opportunities.

4) **Coursework**: There are numerous teaching courses available at Duke. Some are offered only in the spring or fall so plan accordingly. Visit http://gradschool.duke.edu/prof_dev/teachingtech/index.php for a list of courses.

5) **Certificate in College Teaching**: This is a new program beginning in the fall of 2011. It requires coursework, teaching experience and observation, and an online teaching portfolio. Visit http://gradschool.duke.edu/prof_dev/cct/index.php or contact Hugh Crumley at crumley@duke.edu.

6) **Center for Science Education**: For those students who are interested in engaging the community in science education, the center provides resources and advice for designing and implementing outreach projects. Visit http://www.scied.duke.edu/ for more information.

**PREPARING FOR THE FUTURE**: It is important to remember that your ultimate goals in graduate school are: 1) to complete an independent and significant body of research, 2) to become a knowledgeable scientist and lab citizen, and 3) to prepare yourself for the next steps in your career. While the first two points should be obvious, the third point is sometimes postponed inappropriately. You should constantly challenge yourself to think of what your desired next steps will be and how best to prepare for them well ahead of time. Defending one’s thesis without knowing one’s next step/position is an undesired outcome, and is not reflective of the time and effort a student put in for 5 years or of the commitment and training contributed by UPGG faculty and leadership.

For those who choose to follow an academic career path, you should be sure to present your research at national and international conferences, and take this opportunity to meet scientists in your field(s) of interest. Beginning in the 4th year, all students should take the initiative to identify and contact potential postdoctoral mentors. Setting one’s future plan (postdoc, teaching, other career choice) should be done one year before the intended graduation time, hence allowing sufficient time to formulate and develop competitive postdoctoral fellowship opportunities.
proposals (e.g., NIH, NRSA). It is not unreasonable, and is in fact encouraged, to have a postdoctoral position/post-graduation employment lined up 6-9 months prior to graduation. You should talk OFTEN with your PhD advisor, committee members, and the DGS for help in both identifying potential postdoctoral opportunities and how best to take advantage of them. During the 4th year committee meeting is an excellent time to discuss future plans and to get advice from 4-5 well-established scientists who have all gone through this process themselves. Some of these individuals might even write letters of reference for the student, so establishing a plan sooner rather than later demonstrates a student’s longer-term vision (at least for the next 3-4 years).

If you are seeking a career in industry, you should also make many contacts and seriously consider how your research relates to the mission/ aims of the industry you seek.

In addition to discussions with one’s advisor and other faculty, students may find the Duke Career Center (http://studentaffairs.duke.edu/career/graduate-students) to be a valuable resource for discussing and developing one’s transition from graduate school to the workforce.
FINAL YEAR IN THE UPGG PROGRAM

Most students complete defend their thesis research between years 5 and 6. The expectation is that most UPGG students will graduate in 5.5 years. The Graduate School rule is that the thesis defense occurs 2-4 years after the preliminary exam. Graduate credits have a time limit – those students still in the program 6 years past the date of the prelim are required to re-enroll in classes (http://gradschool.duke.edu/academics/degree_reqs/phd_reqs/index.php - time). This is a Graduate School requirement to which all training programs must adhere.

The effective completion of one’s PhD work is the oral defense and submission of final dissertation. There are several rules that must be followed well in advance of the defense date, as outlined below:

REQUIREMENTS TO GRADUATE WITH A PHD FROM UPGG:

Credits: Completion of a minimum of 30 credits, with at least 24 graded credits

Final committee meeting: By the start of the 5th year, students should have had a final committee meeting in which the committee has evaluated the student’s progress and given approval for him/her to begin writing the thesis document.

Publications: Students must have a minimum of one 1st author manuscript of original and scholarly work published (or in press) in a peer-reviewed journal. The manuscript must be officially accepted and/or in press before the committee can give a student permission to schedule his/her thesis. Knowing this requirement, students should aspire to publish before the 5th year and should discuss publications regularly with their advisors. Publications reflect your productivity and make you a strong candidate for the next step in your career.

Change of committee chair: The thesis advisor serves as chair of the final examination committee. At least two months before your final exam, your final exam committee must be approved by the Graduate School, even if it is the same committee you had for your prelim. This form (http://www.gradschool.duke.edu/policies_and_forms/) is submitted by the Program Coordinator and DGS and approved by the Associate Dean of the Graduate School. As with the preliminary exam, please remember this is not an instantaneous process, so please submit this paperwork an additional month ahead of time.

Required Forms: The “Intention to Receive Degree” form must be submitted to the Graduate School in January, for the May commencement, in July for September commencement, and in November for December commencement. However, these deadlines can change without warning, so please consult the Graduate School Bulletin. The necessary form is online (http://gradschool.duke.edu/academics/apply_to_grad.php). If you do not graduate at the anticipated time, there is no penalty. However, you must submit a new form for the next commencement date. This form is submitted via the web. **Please, when filling this form out,
drop a note to the UPGG Program Coordinator indicating that you have done so.**

**Scheduling the date:** If you are affiliated with UPGG (Track I), please contact the program office two months prior to your dissertation so that we may arrange a time and location for you. The UPGG office will help with the scheduling your seminar and for distributing information about it to UPGG students and faculty.

If you have affiliated with a department (Track II), please notify the UPGG program office at least one month prior to your seminar so that we may 1) confirm that all requirements have been met and 2) post the announcement and work with your department to ensure that UPGG students and faculty are aware of the time, date, and location.

One week before your defense at least, you must submit to the Graduate School a written announcement of the date, time, and location of your defense (which can be done by the UPGG Program Coordinator by request); a letter from your advisor certifying the dissertation is ready to defend; and an electronic copy of your dissertation.

**WRITTEN DOCUMENT/THESIS**

Students are required to give committee members a complete draft of the dissertation three weeks ahead of the defense date. This allows the committee members enough time to read the entire dissertation and to contact you with major changes to the document that can be addressed in a revised document before the defense. Ensure that the dissertation is submitted to the advisor and committee for comments, and then to Graduate School electronically before the defense. Some revisions may occur afterwards but it will save you time if you have some of these changes in hand before the defense so that revisions can be easily attended to in the week between the defense and re-submission of the revised document. Bear in mind that proper planning can alleviate much of the stress that inevitably leads up to the thesis defense.

**Format of document:** The Graduate School has a booklet called “Guide for the Preparation of Theses and Dissertations” (see [http://gradschool.duke.edu/academics/theses/index.php](http://gradschool.duke.edu/academics/theses/index.php)) which sets forth requirements concerning the dissertation format (page layout, type style, footnotes, etc.), submitting the dissertation for preliminary approval, binding, copyright procedures, etc.

**In addition, UPGG leadership has requirements and expectations for the content of the written thesis document. The general outline is as follows:**

**Chapter 1: Introduction.** This should include background information that is relevant to the subsequent data chapters. In general, it should define the research area, the research
problem, the gap in knowledge, and summarize the main points of the thesis.

Chapters 2-?: Data. These chapters should describe the distinct studies that make up the body of thesis research. These chapters are often from published papers. While the published document can provide a framework for the chapter, the student should ensure that figures follow the formatting and numbering of the thesis. In addition, sufficient background, justification, and experimental detail that might not be included in a published paper should be included in the thesis chapter(s) so that committee members can thoroughly evaluate the work.

The title pages of the chapters that are linked to published papers should indicate the publication somewhere on the page. Doing so highlights that the work was reviewed and deemed acceptable by the scientific community and also highlights other co-workers who might have contributed to the study. Since the thesis is an evaluation of a student’s body of research, it is important for a student to emphasize in the thesis chapters the work s/he did herself versus that done by collaborators.

An example of a chapter title page that includes published data is provided below:

Chapter 2: Analysis of Centromeric Activity in Robertsonian Translocations: Implications for a Functional Acrocentric Hierarchy

Chapter 2 was modified from a manuscript (of the same title) published in Chromosoma 103: 459-467 (1994). The authors were Beth A Sullivan, Daynna J Wolff, and Stuart Schwartz.

Last chapter: Discussion and Future Directions. The last chapter of the thesis document is not to be an after thought, and in fact, is one of the most important chapters of the entire thesis. The Discussion/Future Directions chapter is the place in which the student puts his/her thesis work in a broader biological/medical/translational context and expands on the future possibilities for the work. This chapter should easily be more than 10 pages (double-spaced) and should reflect the imprint of the student’s own thoughts. What are the implications of your work to your specific field and more importantly, to biology in general? How have you contributed a vertical step in knowledge to the field? If you could stay in the lab for 5 more years, what would be the next experiments you would do? What would be the predicted results of those experiments, what would they mean, and in which direction could that then lead the project?

ORAL PRESENTATION/DEFENSE
All UPGG students are required to give a dissertation seminar. This seminar is open to the public. After the seminar, a "closed session" with the committee occurs.

Format of the dissertation seminar: The dissertation presentation should be conducted as a professional seminar in which the student presents his/her thesis research, including background, gap in knowledge, goals of the thesis, experimental approaches, and resulting data. Importantly, rather than presenting the data as a laundry list of experiments, the student should strive to tell a scientific story. What was the research question, how did you test the question (or existing paradigms), interpret the results, and how does your data fit into existing or new models? Students should view the dissertation seminar as a way to showcase their growth into a more mature scientist, public speaker, and scientific communicator.

*While the dissertation is a public event, and is often attended by the other students, friends, and family members, the expectation is that all students will conduct the seminar in a professional manner. This seminar could in fact be used as one's postdoctoral job talk and should be treated as such. Clearly, there are many people in the lab, program, and Duke community who might warrant acknowledgement for scientific and intellectual support during the student’s PhD work. It is appropriate to acknowledge these individuals in a slide at the end. Further personal acknowledgements should be limited to one additional slide. Overly profuse and extensive personal acknowledgements are more appropriate for, and are encouraged at, the thesis defense after-party that follows the seminar and oral defense. The goal and expectation of the oral defense is to be professional and focused, from start to finish.*

Oral (private) defense: Questions asked on the final examination should concern the candidate’s dissertation and related matters. The examination is oral and normally extends for two hours, but not more than three. After the examination, the candidate will be excused from the room, and the committee will discuss the dissertation, oral presentation, and answers to questions both in the public and private defense. Successful completion of the final examination requires at least three affirmative votes (including that of the dissertation supervisor) and not more than one dissenting vote. Assuming all members vote affirmatively, each signs his/her name on the acid-free and first copy of the abstract title page, and on the certificate of examination to the Dean (doctoral examination card). These signatures signify that the abstract of the dissertation is suitable for publication in Dissertation Abstracts.

AFTER THE DEFENSE:

Forms: The signed final examination certificate and one copy of the signed dissertation pages must be submitted to the Graduate School. While the originals of these forms are kept in the Graduate School office as your official record, we would appreciate copies for our files. Please provide us a copy of the title page of your dissertation with the committee signatures and a copy of the abstract.
Revisions to the document: The student then has the lesser of **30 days** or **until the semester deadline** to complete all corrections for the dissertation. If the committee requests additions or changes to the document, revision deadlines should not be used as an excuse to submit an incomplete or unsatisfactory document. Remember, giving the document to the committee 3 weeks before the defense date will provide ample time to receive and make major changes to the written document.
DEGREE TRACKS

In addition to everything outlined below, the student, the committee, and the thesis shall follow the degree requirements as stated in the Graduate School Bulletin.

While some UPGG students pursue their PhD through the UPGG itself (Track I), others choose to affiliate with a Duke University academic department, receiving their degree through that department but with a Certificate in Genetics granted by the UPGG (Track II). The requirements for these two tracks may differ, and we do our best to outline some of the most significant differences below, but please feel free to discuss this issue with the DGS, Program Coordinator, and others. Again, this track decision must be made, and appropriate paperwork completed, before October 31 of your second year.

TRACK I: REQUIREMENTS FOR A DEGREE FROM THE UNIVERSITY PROGRAM IN GENETICS & GENOMICS

A. By September 1 of the student’s third semester, s/he should fill out an Affiliation Form (obtained from the UPGG office or program website), indicating that the student will affiliate with the UPGG program and specifying the faculty advisor. This form is signed by the student, advisor, the chair of the department in which the student is working, and the UPGG DGS. The original is retained in the Graduate School.

B. Transfer from other Duke umbrella programs to UPGG. Some Duke umbrella graduate programs are not degree-granting (i.e. DSCB, CMB). After the 1st year, these umbrella program students have the option of joining the departmental graduate program of their faculty mentor or opting to get their degree through UPGG. Students wishing to be considered in the UPGG program and who have chosen to do their thesis work in a UPGG faculty member’s lab should complete the UPGG Application Form (downloadable from the UPGG website), submit it to the DGSA, and arrange an “interview” with the selection committee. Applications should be submitted before September 1 of the 3rd semester (i.e. the start of the 2nd year). This date is necessary to ensure that all students are appropriately enrolled in UPGG required courses. Applications submitted after this date will not be considered.

C. A prelim/thesis committee of at least four faculty members (though typically five), including the thesis advisor, should be selected by November of the fourth semester in graduate school. Three members of the committee must be members of UPGG. All should be members of the graduate faculty unless specifically waived by the DGS and the Graduate School. The DGS and Graduate School must approve committee members from outside of Duke. Remember, the approval process takes time, so be sure to complete the committee approval forms as soon as possible.

D. The preliminary exam should be taken sometime in the fourth semester (WINTER/SPRING OF SECOND YEAR) and before the end of the fifth semester in graduate school (FALL OF THE THIRD YEAR). Any exceptions must be justified in writing by the student and approved by the DGS and the Graduate School.
E. All students beyond the third year (fifth semester) must schedule annual thesis committee meetings. Within one week of the meeting, the student and the thesis advisor should submit to the DGS on the meeting the evaluation form outlining the recommendations of the committee. The report must be signed by both the student and the mentor. Forms for this report are available on the UPGG website.

F. All UPGG students who matriculated before 2011 are required to be teaching assistants for one semester in a course emphasizing genetics (e.g., GEN 200, Medical Genetics; BIO 118, Genetics and Cell Biology; UPGEN 778 Genetic Approaches to Solutions and Biological Problems). This requirement can be fulfilled during any semester that the student is in graduate school.

G. Requirements to graduate: Students are required to have at least one first-author manuscript of original and scholarly work published in a peer-reviewed, refereed journal by the time they graduate. The manuscript must be officially accepted or in press before a student can be given permission to schedule his/her thesis.

H. The final examination and thesis defense follow the rules as outlined by the Graduate School. The thesis advisor serves as chair of the final examination committee.

TRACK II: REQUIREMENTS FOR A DEGREE FROM A DEPARTMENT WITH CERTIFICATE IN GENETICS AND GENOMICS

A. The students should follow the requirements of the department, but will be required to continue their participation in UPGEN 716 and UPGEN 750 throughout their training at Duke University.

B. By the end of the student's first year, s/he should fill out an Affiliation Form (obtained from the UPGG office or program website), indicating the department in which the student wishes to pursue the Ph.D. and the faculty mentor. This form must be signed by the student and the DGS of both UPGG and the student's proposed department. The original is retained in the Graduate School. It should also indicate that the student agrees to complete the requirements for a certificate in Genetics.

C. The thesis committee must include two members of UPGG including the advisor.

D. Requirements for students in Track II (certificate) include completion of all required coursework, successful completion of the preliminary examination, annual committee meetings, publications, and attendance at UPGEN 316, UPGEN 350, and other UPGG-sponsored events.

The reports of committee meetings may be in either the format described for Track I, or, if the department has its own format, a copy should be sent to the UPGG office.
TERMINAL MASTERS DEGREE

In the hopefully unlikely event that a student leaves Duke or UPGG before completing the Ph.D., a terminal Master’s degree may be an option.

A. The regulations in the Graduate School Bulletin on “Degree Regulations--The Master’s Degree,” and “Additional Master’s Regulations” will apply. Note that, although there is no specified number of course units required for the Ph.D., the A.M and M.S. program requires a minimum of 30 units of degree credit, at least 24 of which must be graded coursework, and the preliminary examination or a final examination administered by the student’s A.M or M.S committee.

B. Forms
   a) Committee approval form
   b) Intention to receive degree form. This form is online through the Graduate School
   c) Thesis format--see the requirements in the booklet “Guide for the Preparation of Theses and Dissertations.”
   d) Final examination certificate--signed by your committee members and returned to Graduate School after the exam.
OTHER INFORMATION

CHANGING LABS:

Success in a research lab rests on the interests, motivation, and abilities of the student in addition to interactions between the student and advisor. Occasionally, a change is desired on the part of the student or the faculty mentor or both. The reasons for changes are variable and typically, after the fact, all parties agree that changes were for the better.

Faculty and/or students must inform the DGS and the Program Directors as soon as possible of the desire for a change in research lab, even prior to making a firm decision on the matter. Confidentiality will be assured. *We would especially request that the person initiating the change (student or faculty) inform us prior to discussing it with the other.* This allows us to actively participate in the process from the start, should that be determined to be the best course of action. We can help guide the previous mentor, the future mentor, and the student in the process. The sooner the UPGG leadership is informed of potential issues or a desire to change labs, the better, as this will allow us to present all available options to the student and the mentor.

UPGG leadership wants to support the students and the faculty during those rare occasions when a change is requested. When a student informs the administration ahead of time of concerns or problems, the leadership can be of much more help and offer as many solutions as possible for a given situation.

If a lab change is made, you must complete a new affiliation form and submit it to the DGS/DGSA.

STUDENTS TRANSFERRING FROM OTHER PROGRAMS (e.g., CMB, DSCB, Integrated Toxicology) WHO AFFILIATE WITH UPGG

If you entered Duke Graduate School through non-degree granting programs (e.g., CMB, DSCB, or ITEH), you will need to affiliate with a degree-granting program/department at the end of your first year. If your PI is affiliated with UPGG, you have the option to join UPGG. If your PI is not affiliated with UPGG, you are encouraged to join your new lab’s departmental graduate program. To join UPGG, you must complete the application form (before September 1st of the 3rd semester) and schedule an in-person interview with the DGS, Director, and Co-Director. If you are accepted into the program after this, you must fill out a Thesis Lab Affiliation Form (found on the UPGG website, other program websites, or with the Program Office of your specific program), have it signed by your advisor, the UPGG DGS, and the chair or business manager of the PI’s department.

It is necessary that you fulfill ALL of the UPGG requirements described elsewhere in this handbook (but see below). As a result of this rule, you may have to take classes in your second and third years if previous classes taken in the other umbrella program did not cover the
material in required UPGG courses. It is a good idea to review your transcript with UPGG’s DGS when you meet to have him/her sign your Affiliation Form, to ensure that you have everything in order.

There are only a few exceptions to the above: those who join UPGG after the first year from other programs are not required to take UPGEN 701 (this course is for 1st year UPGG students only). Enrollment in UPGEN 716 and UPGEN 750 is not required for third year or later, but students are strongly encouraged to attend the seminars. Students should be aware that they will be called upon to present their research in UPGEN 716 from the 2nd year on until they graduate. Enhancing students’ public presentation skills is a major training goal of UPGG.

Throughout your graduate career, the original of all future documents (Committee Approval Form, Prelim form, Committee Meeting evaluations/reports, etc.) should be given to the UPGG office. A copy of these forms will be provided to your departmental program office if necessary. Moreover, do not forget to complete the requirements of your original program (example: attending certain seminars).

All students who transfer from other programs are expected to meet the performance expectations, requirements, and deadlines of UPGG. This includes selecting one’s committee, scheduling the preliminary exam, and adhering to other UPGG guidelines and requirements. Please refer to Track I under DEGREE TRACKS for detailed information and required timelines.

At the end of your second year, your funding will transfer from your program’s funding to one supported by your lab. Contact your program coordinator for information about this new source of funding. It is your responsibility to set up your payroll through your department.
UPGG STUDENT BODY COMMITTEE

Mission Statement:
The student body has a primary commitment to academic performance and scientific productivity, but also participates in organizing UPGG student activities. The student body leadership operates under the purview of the graduate program leadership and communicates directly to the program director, co-director, and DGS.

Description and Role of Student Body Leaders:
All leadership positions will be filled at the "Annual UPGG Student Body Meeting" at the beginning of the new school year in the fall (with the exception of the GPSC rep which could be filled at the retreat). Ideally this meeting would coincide with or just precede the first UPGEN716 Friday student seminar of the year.

The following are the current activities for which leadership opportunities are available:

1. Recruitment
2. Annual Retreat
3. GPSC representatives
4. Graduate Student Symposium
5. Distinguished Lecture Series
6. Community Outreach and Education
7. Projectionist
8. UPG750 (Tuesday seminar committee)
9. T-Shirt
10. Social Events (Opening Picnic, Christmas Party)
INFORMATION FOR INTERNATIONAL STUDENTS

Services for International Students

1) International Office:
This office will process your I-20 Certificate of Eligibility. **The I-20 or the DS-2019 is issued only after you have been offered admission, returned the on-line enrollment form, provided verification of the necessary funds, and returned the Request for Temporary Visa Form.** If you are an international student currently attending a U.S. institution and planning to transfer your visa to Duke, your current school must transfer your visa record to the Duke University International Office. It is your responsibility to submit the request to his/her current school. Only one visa eligibility form will be issued per student.

Once you arrive on campus, you will have to register with the International Office. There is usually a mass registration at the end of the Graduate Student orientation, and you should be ready to present all your documents at that time. (You should get information directly from them regarding what is needed).

This is also the office you would have to contact in case you want to go back home for a visit. You will have to get your I-20 stamped from them, prior to your visit.

You can visit their website:
http://www.internationaloffice.duke.edu/

2) International House:
This is **different** from the office, and helps you settle down socially. The people working here are really helpful, and will guide you about housing, groceries, banks, phones, cars, driving permits, taxes, getting a SSN and ITIN (see below) etc. Attending the special orientation they host, a few days prior to the Graduate Student orientation, is highly recommended.

Additional information can be found at their website:
http://ihouse.studentaffairs.duke.edu/

Finances

If you are an international student, you will be paid for the first two years by a fellowship from the Graduate school directly, and not by NIH training grants. However, you will get exactly the same amount (gross) as your fellow students. In the subsequent years, you will be supported by TA-ships/ project grants from your lab, as will the others.
Applications to be filled:
1) When you enter, you will have to file for an “International Tax Payer’s ID number (ITIN)”. This is required for you to receive any payment, and is especially meant for international students on a non-compensatory income (such as a fellowship). This can be done at any major bank, such as the main branch of Wells Fargo on Broad Street. You can contact the International House, or visit their website, for queries. This will be valid for your first two years.

2) After your second year, once you are on the payroll of your laboratory, you will have to apply for a “Social Security Number (SSN)”. For this you will have to visit the Social security office, along with the required documents. The International House also arranges trips, and you can visit their website for details.

Taxes:
Taxes will be deducted at source for all the payments you receive from the graduate school. Certain countries have treaties with the US, and these students need not pay tax. You should contact the Bursar’s office, and then file for exemption if you are eligible for no taxes. However, if you do pay taxes, you will file for returns at the end of the academic year. You can contact the International house, or visit their website, to learn more about this process.

Other Important Information

Health Insurance: It is mandatory for all students on a F1 / J1 visa to be under the Duke Health Insurance scheme. This will be covered by your fellowship. You will have to accept this scheme on the ACES website.

Vaccinations: Remember to get all your immunizations, and fill them online prior to arrival. You will NOT be allowed to register for classes on ACES if this is incomplete. Contact Duke Health for any queries about the immunizations.
See also: http://healthydevil.studentaffairs.duke.edu/

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