

Final Report

Year 2-4 Evaluation of the PhD Program in Genetics

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This report was prepared in response to the request of the Yale Graduate School for all PhD programs to perform a comprehensive evaluation of their training, with a particular focus on years 2-4. The report first describes the process we went through to prepare the report, and then describes recommendations for improvement.

Background

Over many years and recent DGS tenures, the PhD Program in Genetics has developed a robust infrastructure to admit, educate, train, mentor, assist and monitor the progress of its students. Important parts of this infrastructure include a Genetics Graduate Program Steering Committee, a website (<http://info.med.yale.edu/genetics/gp/gplIntro.php>) with links to a detailed handbook (http://info.med.yale.edu/genetics/graduateHandbook/GH_TOC.php), a special seminar class (GENE675), and a Research in Progress series. A summary of the program is found at the end of this document.

The Genetics Graduate Program Steering Committee – The Genetics Department has a Graduate Program Steering Committee currently comprising the DGS as chair, three graduate students, one emeritus faculty member and four additional active faculty members. The committee meets approximately once a year to assess the program, or as the need arises. The last committee meeting prior to the announcement of the 2-4 Project was held on May 16, 2006 (minutes attached). This committee was utilized in a lunch meeting with the students for this evaluation.

Evaluation Process

October 3, 2006: At the October Genetics Faculty Meeting, the faculty discussed how to conduct the evaluation of the Genetics Graduate Program for the 2-4 Year Project. It was decided that the DGS would send out an anonymous survey to the graduate students in the program asking them to comment specifically on how to expedite completion of the PhD program in Genetics, and more generally on how to improve the program.

October 13, 2006: The survey (see attachment) was sent by email seeking a response by October 31, 2006 – a reminder was sent out on October 25, 2006 encouraging involvement. Two students responded (out of 58). One was highly disgruntled. The second respondent was essentially satisfied, and had several suggestions.

In the intervening time, the Graduate School launched its own survey. Two students responded to that survey as well. The responses were similar to those obtained for the Genetics-specific survey.

March 13, 2007: A sponsored lunch meeting was held to encourage additional feedback from a larger set of Genetics students. Students were offered the opportunity to meet with the Genetics Graduate Program Steering Committee to discuss how to streamline student progress through the Genetics Graduate Program. Two students from the committee and an additional seven students from the program met with six faculty from the committee.

Results

The bottom line: Based on the responses obtained at the lunch meeting, the students appeared quite satisfied with the structure of the Genetics Graduate Program. Addressing the specific issue of the 2-4 Year Project, the group agreed that the average time to receive a Ph.D. in the Department (approximately six years) was reasonable. A more detailed summary of the lunch discussion is appended. The lack of a greater student response to either of the surveys or the offer of free lunch was also taken as general satisfaction with the program. A few recommended actions were taken from the students' comments from the surveys and the lunch meeting.

Recommendations to implement

- Develop courses on topics in human genetics and on the techniques used to conduct human genetic analysis. Some of these courses are currently in the course guidebook, but are offered either sporadically or not at all. The current course offerings will be reviewed, and an appropriate set of courses will be developed to train Genetics students so they have a firm basis in understanding human genetics. Several new primary and secondary appointees in Genetics have strong research programs in human genetics. These faculty should be encouraged to contribute to the Department by teaching in these courses.
- Create an opportunity for greater "face time" and honest discussions between the students and the faculty. This is intended to allow the students to "learn from the pros" about many general issues that could affect their science and their future careers. The Department might wish to establish a monthly faculty-student lunch meeting place (the lunchroom or the I-304 seminar room) where interested students and faculty could meet to engage in casual discussions concerning science, career, or institutional issues.

Attachments:

- *SurveyQuestion.doc*
- *Steering Cmt Mtg Notes (2006 Steering Committee MinutesMJS.doc)*

Minutes from Lunch Meeting with the Steering Committee March 13, 2007

In attendance: Students -Lara Appleby, , Allison Clark, Khalid Fakhro, Molly Kottemann, Lorri Marek, Brian O'Roak, Carlos Stahlhut, Faculty – Michael Stern (DGS), Allen Bale, Daniel DiMaio, Charles Radding (Emeritus), Joann Sweasy and Tian Xu

Some thoughts and concerns that were discussed:

What would help speed up process?

- The group agreed that the Department's average time to receive a Ph.D. of six years was reasonable.
- A student might "want" to take longer because of the fear of going into the job market or the inability to figure out exactly what they would like to do.

Suggestion(s): Career fairs and Seminars. One student mentioned that the Graduate School Career Services offers a good Career Fair for students.

Relevance of class work

- Need for a class that is directed toward Human Genetics

Suggestion(s): Secondary faculty (many of whom work on human genetics) could be a good source to ask to assemble a course.

- No need for more courses.
- Other courses discussed - Presentation, management training, "What to do next"

Suggestion(s): More formal feedback from RIP might be an option to improve presentation skills.

Adequate and timely feedback

- Mentor feedback differs depending on the lab
- The department has a number of formal structures to ensure feedback about student progress (eg. QE reports, yearly committee meeting reports and progress reports).
- It is important for the department to keep on top of the communication in order for the PI's and the DGS to assess the progress of each student.

Suggestion(s): Continue to ensure that the student is adhering to the Department's schedule with regards to meeting with their thesis committee and encourage student's to request more frequent meetings if needed.

- The effect that the new online dissertation progress report will have on the active feedback students receive from their mentor.

Suggestion(s): Enact a policy ensuring that the student meets with the advisor regarding their online progress report prior to submitting.

Laboratory Choice – rotations

- Incoming students do not seem to have a clear understanding of what research topics really interest them. Combined with the multitude of lab options, deciding on a lab after only three rotations can be difficult. Students can perform a fourth rotation during the summer after the first academic year.
- Issues with additional rotations

- Since students can begin to affiliate with a lab after the third rotations are complete, students doing fourth rotations feel like they might lose the "race" for available slots within popular labs.
 - Summer rotations before the Fall of the first year are requested occasionally, but frequently cannot be accommodated because of funding.
- o Inability to get a good feel of a lab's environment within the lab rotation period.

Suggestion(s): Workshop highlighting how to choose a lab, what questions should be asked of lab members and what things a student should look for. These topics are currently covered in the initial orientation when they first arrive. It was suggested that a workshop could be offered later in the students' first year when things are less hectic for them. The MCGD track has run a "How to Choose a Lab" session in late Spring for the past two years.

Program Summary

Program Structure –

The Department of Genetics is part of the Molecular Cell Biology, Genetics and Development (MCGD) track within the Combined Program in the Biological and Biomedical Sciences (BBS). Students enter the (MCGD) track and do their rotations during the first year. Student's ordinarily perform three rotations and can work in any BBS lab, regardless of faculty member's Track affiliation. This allows students to obtain concentrated and direct exposure to three different research areas and helps to assist in the selection of a laboratory for dissertation research. The lab choice and home department, from which he or she will eventually earn a degree, is made at the end of the first year.

Being part of the MCGD track offers students a solid foundation in genetics and cellular and molecular biology and also provides the flexibility for students to pursue their individual interests. In some cases, this broadness and flexibility makes it difficult for a student to narrow down and decide on a lab and home department. It is felt that the opportunity to explore the breadth of biology outweighs this difficulty in most cases.

Clear and Frequent Evaluations –

First year students are evaluated by the faculty member after each rotation via evaluation form. After joining The Genetics Department, students have many opportunities for evaluations and feedback. In the students' second year, they are required to take Graduate Student Seminar (GENE675), a full year course that requires them to prepare and deliver a seminar based on the scientific literature. The student is evaluated by the faculty member and other students. Students also take their Qualifying Examination in their 2nd year. In their third and consecutive years, students are required to have a yearly committee meeting, and a report is written up by the student's advisor. The students are encouraged to have more frequent meetings if they feel they need more guidance. Starting with their third year, each student is required to participate in the Department's Research in Progress series. Students are also given the opportunity to share recent progress by presenting a poster at the Department's annual retreat.

Clearly Communicated Expectations –

The Genetics Department has a Graduate Student Handbook, which clearly defines the expectations of the Department, including the responsibilities of the advisor and thesis committee. The handbook is distributed when students enter the Department of Genetics and is also posted online for reference. The Director of Graduate Studies also holds an informational session with entering Genetics students to answer questions and inform students of what is expected of them for their Qualifying Examination.

Genetics Steering Committee Meeting – May 16, 2006

1. QUALIFYING EXAM (QE)

a. QE Distinction Category

Issue: Should the category of *distinction* be awarded to students who did exceptionally well on their QE?

Decision: The committee decided not to create a category of distinction. Instead, committees should reflect exceptional performance in the QE report that is filed and distributed to the student, advisor and committee. In this way, it will be appropriately recognized and recorded in the student's academic performance file.

Discussion: The committee agreed with Charles Radding: The QE is not a test of distinction, but rather what the name describes, *a qualifying exam*. It was felt that creating two classes of students emerging from their QEs, those passing with distinction and those passing without, would not be beneficial.

b. QE Topics: Narrow or Broad

Issue: Should the Genetics Department keep their current format of three *distinct* topics?

Decision: Yes. Keep the QE broad.

Discussion: Students have increasingly chosen multiple reading topics that are closely related to their thesis research, more similar to the structure of the exam in MCDB. Historically, the faculty has continued to be of the opinion to keep a qualifying exam format that promotes a *breadth* of deep knowledge in genetics, therefore insisting that the reading topics be significantly distinct. The DGS approves QE topics, thereby enforcing the faculty's opinion about the role of the QE. The committee did not feel that it was necessary to have more than one topic focused on the thesis research topic.

Additional Notes: (1) Concern was expressed about the assessment of a student's progress during the reading period. Committee chairs need to make sure to provide direct feedback *during* the reading period as stated in the Genetics Graduate Student Handbook. (2) The current format of reading with the faculty remains a desired feature of the QE.

2. MCGD TRACK

Issue: Overview of the effects of Genetics joining the joint MCGD track of the BBS.

Decision: The committee remained enthusiastic about Genetics participation in MCGD.

Background: Genetics has thrived since the establishment of the BBS. Since the establishment of the BBS in 1997, the average number of students who joined Genetics each year between 1997 and 2002 was 8 students. In the past three years, since the restructuring of Cell Biology, Genetics and MCDB into the MCGD Track, the average number of students who joined Genetics has been 10. Prior to the BBS, Genetics had an average of 6 students entering per year. The Genetics Graduate Program continues to run relatively smoothly, although the required efforts of the Registrar and DGS have increased significantly.

Discussion: (1) Admission Without Interview: Various advantages and disadvantages were discussed concerning admitting students without interviews. Joann Sweasy commented that this process is reasonable to continue despite its obvious drawbacks. Although there doesn't appear to be a strong enough reason to necessarily change the process, she feels that it is a significant point for discussion due to the degree of investment and commitment in each student. Kitty Williams stated that she was quite flattered to be "pre-selected" during her admissions process, and that perhaps this was a way of attracting the more "interesting" students. Dan DiMaio suggested that it is perhaps worth surveying. John Alvaro may already have carried out such a survey (*let's ask*). Joann Sweasy noted that the number of students who would have been "weeded out" by such admission interviews was too small to justify a change. Michael Stern stated that on average roughly two students of 40 drop out of the Program prior to the QE stage.

b. Ethics Course

Issue: The formulation of MCGD has created a joint Ethics course taught every year, replacing the former course taught predominantly to Genetics students every other year.

Discussion: Susan Baserga has been doing an excellent job in leading the Ethics course with participating faculty for many years. The committee extends its thanks to her. Due to training grant regulations, this course is mandatory for all students. MD/PhD students also attend the course, e.g. 10 MD/PhD students in 2005/2006. Due to the

increasing size of the first year class, there is concern that the course is getting too large. Dan DiMaio suggested that it might be advantageous to split the class into two groups.

Follow up/Action: Michael Stern should bring up this point for discussion at the MCGD Track Executive Committee Meeting at the end of May 2006.

3/4. FUNDING

Issue: Overview of situation.

Background: The funding atmosphere has become significantly tighter (e.g. NIH capping TG slots; significant reduction in YMS budget flexibility, passed down to departmental business offices), making certain decisions regarding funding of the graduate program more closely watched. The retirement of Betsy Jasiorkowski, who ran much of the program with significant independence, also has contributed to greater transparency of the graduate program finances and budget.

Genetics Funding Slot:

Background: The Genetics Department used to fund two slots designated to support the recruitment of non-US students, since such students could not be funded on NIH training grants due to their non-US citizenship. Approximately five years ago, these two slots were reduced to one. Since the establishment of the MCGD Track, MCDB has contributed slots to MCGD recruitment from some of the University Fellowships awarded to them by the Graduate School. This has ameliorated the effect of this cut, and allowed a larger pool of non-US students interested in genetics to be admitted into the program.

Student stipend supplements:

Background: Michael Stern expressed the administration's goal to not burden the students with the complicated nature of graduate student funding, but pointed out that the matter can become complicated when first year students consider joining a lab of an advisor whose primary department is not a BBS participating department. BBS guidelines state that the stipend supplement for second and third year students on a Training Grant (i.e. that part of the stipend NOT supported by the Training Grant) will be paid by the advisor's primary department. BBS host departments abide by these guidelines. Non-BBS departments have different funding rules, and some object to paying the stipend supplement as dictated by the BBS funding guidelines.

Discussion: Michael Stern asked the committee how to advise students who have expressed interest in a lab from a non-BBS department that is unwilling to pay the stipend supplement. Dan DiMaio stated that faculty who are interested in joint appointments with Genetics should be informed about financial responsibilities. The committee agreed that efforts should be made to find solutions to this small financial issue to insure that students can join the labs they are interested in.

Follow up/Action:

1. Shirlene to find out from John Alvaro if all BBS participating departments abide by the BBS stipend supplement rule. Discuss with John the possibility of adding a more binding sentence in the BBS Advisor/Selection Form if applicable to all departments.
2. Michael Stern to send letter to the chairs of non-BBS departments informing them of the BBS funding guidelines and our expectation that if their primary faculty agrees to accept BBS students into their labs that arrangements will have to be made to cover such costs.
3. Shirlene will provide the selected advisors with an overall funding projection for their students at the time the student joins their labs. This will help ensure proper budgeting throughout a student's academic career in their labs.

5. TEACHING ASSIGNMENTS

Michael Stern gave an overview of how TA assignments are allocated.

(1) There is an informal requirement for Genetics students that one of the two required TA assignments is designated to GENE 500b Human Genetics. This course, successfully taught by Allen Bale over the past several years, has had between 6 and 8 TA's per year. Michael Stern asked if the students felt OK with the access they had to teaching assignments. The general student consensus was positive; Jason Walker noted that you do however have to be "on the ball" (meaning fast) to get the desired TA assignments.

(2) The SPEAK test, run by the Graduate School, must be passed by all non-native English speakers prior to frontal teaching. Students who do not manage to pass the SPEAK test are not allowed to do frontal teaching. These situations have been dealt with on a case by case basis by the DGS; no plans were suggested to alter the existing approach to this issue.

6. GRADUATE STUDENT SEMINAR (GSS)

Joann Sweasy, the current instructor of GSS, provided the committee with an overview of the change in course format. (1) Due to poor attendance and lack of discussion last year, all students are now required to hand in a one page summary of all papers. (2) The papers are uploaded and accessed via the Yale classes server*v2. Joann does not allow students to be excused from the class without a good reason, such as attendance at an academic conference or a family medical emergency. Michael Stern asked if there should be a limit on excused absences. Joann Sweasy was very opposed and compared this to sick days allocated to employees. Joann Sweasy noted that there was less student involvement in the spring term (classic papers). She attributed this to a general lack of knowledge of the history of the field and to the fact that students were simultaneously preparing for their qualifying exams. Joann Sweasy also indicated the major problem encountered in getting faculty to participate in the course. The committee discussed the possibility of leaving GSS in the fall (current papers) as is and changing the format for the spring term (classic papers). The spring term course requirement could be fulfilled at a later time and be topic based. The spring course could also be opened to interested, advanced students. Jason Walker indicated that the new structure could model itself after a student run Journal Club. Katherine Williams thought it was a good idea to open the course to advanced students, but opposed the idea of requiring written summaries. Joann Sweasy indicated that such a seminar course could also include outside speakers. Katherine Williams indicated the critical need to leave GSS for the fall term to provide the entering class a way to more easily adjust to the department and bond with their fellow second year students.

Follow up/Action: Michael Stern to address possible change in format of GSS spring term in a faculty meeting. Depending on result, this should be discussed in a town hall forum with the graduate students.

7. GENE 840 - MEDICAL GENETICS

Discussion: Due to growing student interest, Greta Seashore's Medical Genetics class (GENE 840) had been given a more formalized structure this past year. Requirements include attendance at supervised clinics, conferences and hospital consultations. Michael Stern asked Allen Bale if there should be a requirement that students teach GENE 500b prior to being eligible to TA Medical Genetics. Allen Bale stated this was unnecessary.

8. GENE 921 - READING WITH A FACULTY MEMBER

Michael Stern explained that GENE 921 has been used as a convenient tool for the department to enable talented students having difficulty achieving two honors grades in standard classes to show their scholarly acumen and advance to their QE. The course has also been used by non-Genetics students. Michael Stern asked the committee members if they felt this should be closed to non-Genetics students.

Decision: GENE 921 should remain the same – also open to non-Genetics students at the discretion of the DGS.

9. GRADUATE STUDENT LOUNGE

The discussion focused on whether or not the Graduate Student Lounge is being used by and directly benefits the graduate students. Jason Walker mentioned that prior to construction that he and his classmates often used the Lounge to have lunch, study or relax. The graduate students expressed interest in keeping the Lounge as is. Dan DiMaio and Allen Bale indicated that the occasional seminar luncheons are conducted with the graduate students and favorably increased the use of the space. Dan DiMaio mentioned that once the SHM I-wing construction is finished and the Lounge has been newly renovated at the end of August that the graduate students may be more inclined to use the Lounge.

Decision: The GSL should remain a room set aside for Genetics graduate student use.

10. GRADUATE STUDENT HANDBOOK

Michael Stern informed the committee that the Graduate Student Handbook is now accessible online and updated once a year.

11. DEPARTMENTAL HAPPY HOUR

Joann Sweasy expressed concern that the Departmental Happy Hour is not serving the purpose of getting people together. She commented that hardly any faculty show up. The discussion became focused on whether or not the Happy Hour should be once a month versus the current format of every Friday. Allen Bale indicated he felt that having Happy Hour once a week seemed rather “forced” and encouraged the idea of having the graduate students organize the event. Katherine Williams and Jason Walker suggested a new venue (such as bowling) for Happy Hour. Michael Stern commented that Happy Hour should remain simple versus elaborate.

Follow up/Action: It was suggested that the subject be brought up in a town hall forum.

12. RIP ATTENDANCE

Michael Stern commented that faculty attendance at RIP has improved from last year. He noted that recent attendance by students and faculty was tapering off, and that students should be encouraged to ask questions.

13. FORMALIZATION OF GENETICS GRADUATE PROGRAM

Michael Stern indicated that in his five years of service as DGS that the Genetics Program has continually become more and more formalized. He attributed this trend to the growth of the Program and to the MCGD Track.

14 PhD/MBA PROGRAM

Michael Stern briefly introduced the new joint PhD/MBA Program offered by the Graduate School/School of Management. Michael Stern asked the committee their opinion of what would be the best timing for Genetics Ph.D. students to take part in this two year program. The majority of the committee members seemed to think that it would make most sense for students to participate in the MBA program immediately after selecting their thesis lab and completing their first year. Joann Sweasy commented that, as an advisor, she would be less likely to accept a student in her lab since she wouldn't know how to plan.

Follow up/Action: This issue was brought to the attention of the BBS, which will work on establishing reasonable policies for the science students interested in this program.

In attendance:

Michael Stern, Chair, DGS Genetics

Allen Bale, Prof. Genetics

Daniel DiMaio, Prof. Genetics

Charles Radding, Emeritus Prof. Genetics

Joann Sweasy, DGS Microbiology

Isabel Beerman, Genetics 6th year student

Jennifer Harrell Jonason, Genetics 7th year student

Jason Walker, Genetics 4th year student

Katherine Williams, Genetics 3rd year student

Shirlene Scott, Genetics Registrar

Minutes prepared by Shirlene Scott

