

# Cell Biology Graduate Program Handbook

2017-2018



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Chicken wire, paper, wood glue, embroidery floss, window screen, and aluminum sheeting. Reproduced with permission of the artist (<http://www.jeremywolin.com/>).

## Cell Biology Graduate Program Handbook \*

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\* Revised September 2015. Please send any comments or suggestions for improving the handbook to [karin.reinisch@yale.edu](mailto:karin.reinisch@yale.edu) or [lisa.crotty@yale.edu](mailto:lisa.crotty@yale.edu)

## **INTRODUCTION**

This handbook is available as a source of information for graduate students studying for the Ph.D. degree in the Department of Cell Biology at Yale. Students and faculty can also find answers to questions pertaining to the Cell Biology Ph.D. program and its specific policies in the [Cell Biology Graduate Bulletin](#), a definitive source of information about academic rules and regulations as well as general policies that apply to all graduate programs.

## **ENTERING THE CELL BIOLOGY PHD PROGRAM**

Students interested in pursuing a Ph.D. in Cell Biology apply to the Biological and Biomedical Sciences (BBS) graduate program, usually choosing the Molecular Cell Biology, Genetics and Development (MCGD) track or the Biochemistry, Biophysics and Structural Biology (BBSB) track as their primary interest on the application form. At the end of the 1<sup>st</sup> year, an MCGD or BBSB track student choosing to carry out thesis research in the lab of a faculty member at the medical school with a primary appointment in the Cell Biology Department usually joins the Cell Biology Ph.D. program. If the thesis advisor has a secondary appointment in Cell Biology but a primary appointment in Genetics, the MCGD track student can choose to join the Cell Biology program assuming the thesis advisor gives approval. An MCGD track student choosing to do thesis research that is cell biological in nature but in the laboratory of a faculty member at the medical school not formally affiliated with the department can also request to be in the Cell Biology program, subject to approval by the Cell Biology DGS.

Formally, to join the Cell Biology program, a student must fill out the “Advisor and Degree Program Selection Form” available from the BBS office (see **CONTACTS** below) and have it signed by the thesis advisor and DGS of Cell Biology. MCGD track students submit this form to Shirlene Scott, the MCGD registrar ([shirlene.scott@yale.edu](mailto:shirlene.scott@yale.edu)), while BBSB track students submit the form to Nessie Stewart, the BBSB registrar ([nessie.stewart@yale.edu](mailto:nessie.stewart@yale.edu)).

## **TIMETABLE TOWARD THE PHD**

Students should aim to finish the Ph.D. in 5 years. Described below is an idealized timetable with major events of each year toward the Ph.D.

Year 1: Devoted mainly to laboratory rotations and coursework. Students do 3 rotations during the academic year in any of the labs in the MCGD or BBSB track or in the wider BBS program. Some students occasionally elect to do a 4<sup>th</sup> rotation. Usually all students will have fulfilled the Cell Biology course

requirement (p. 4) at the end of this year. By the end of the year, students choose a lab in which to carry out thesis research.

Year 2: Begin thesis research. The qualifying exam is taken during the fall semester. The first thesis committee meeting should be held by the spring/early summer toward end of this year. Teaching.

Year 3: Thesis research. Admission to candidacy must occur by the end of this year. Teaching. Writing first manuscript for publication.

Year 4: Thesis research. Manuscript writing.

Year 5: Finishing research, manuscripts and dissertation. Graduation!

### **REQUIREMENTS FOR THE PHD**

The formal requirements for the Ph.D. in the Cell Biology program are successful completion of the course requirement and the qualifying exam, an approved prospectus, and a dissertation. All students are required to teach two semesters as well. Each of these requirements is described in detail below (see also the year-by-year requirements checklist given to incoming students, in Appendix).

### **COURSE REQUIREMENT**

Students are required to take at least 5 graduate-level courses for a grade. No specific curriculum of courses is required, but CBIO602a (Molecular Cell Biology) is recommended for all students to attain a solid foundation in molecular cell biology. Also recommended is a seminar course, such as CBIO603a (Seminar in Molecular Cell Biology) or CBIO606b (Advanced Topics in Cell Biology), in which students can develop the skill for critical analysis of research papers. Students design their own curriculum of courses to meet individual interests and needs, in consultation with the DGS. BBSB students who did not take CBIO602a in the first year are strongly encouraged at least to audit this course in the 2<sup>nd</sup> year.

Similarly, MD/PhD students are required to take at least 5 graduate-level courses for a grade. Several courses, including CBIO502, MB&B800, or NBIO500 from the Medical curriculum, each count as one graduate-level course. CBIO602a and either CBIO603a or CBIO606b are strongly recommended. As with PhD students, courses should be selected in consultation with the DGS to meet individual needs and interests of the student.

Students must meet the Graduate School requirement of a grade of Honors in 2 courses, if necessary taking additional courses beyond the 5 required in the department to fulfill this requirement. The Graduate School requires the requirement is met by the end of the 2<sup>nd</sup> year.

Students must also maintain an average grade of High Pass in all courses.

Note that MCGD or BBSB track students taking the 3 core courses of the track along with 2 electives in the 1<sup>st</sup> year will fulfill the course requirement in Cell Biology by the end of the 1<sup>st</sup> year, assuming they receive at least 2 Honors and maintain a High Pass average.

### **TEACHING**

Students should start to teach in the second year. The requirement is two semesters as a teaching assistant (TA) at the “TF 10 hrs” level in any of numerous lecture, laboratory, and seminar courses offered at the undergraduate, graduate, and medical school levels. Please remember that being a TA is a serious commitment where you will be expected to carry out your duties responsibly and professionally.

Courses having TA positions are listed on the “TA Position Form” distributed each year by the BBS office. During early summer, students formally request TA assignments by indicating their top 3 choices on the form for both terms. The form is submitted to the Cell Biology Registrar, who in turn forwards it to the departmental Registrar of the selected courses. The instructor in charge of the course ultimately chooses the TAs. All requests for interviews with instructors must be arranged through the departmental Registrar.

Students are strongly encouraged to enroll in various courses and workshops offered by the Graduate [Teaching Center](#), like the “Fundamentals of Teaching,” that provide instruction in various aspects of teaching.

Students may not teach more than one “TF 10 hrs” course per semester since the time commitment that might be involved could seriously hamper progress in thesis research.

Students may elect to teach beyond the 2 semester requirement but only with approval from their thesis advisor. *TA assignments to fulfill the teaching requirement are given priority in most courses; all other placements are secondary.*

### **QUALIFYING EXAM**

## Format

The qualifying exam consists of 1) a written research proposal based on the prospective thesis project and 2) an oral exam in which the student defends the research proposal before a qualifying exam committee.

## Timeframe

MCGD or BBSB track students who joined the Cell Biology PhD program toward end of the 1<sup>st</sup> year are expected to complete the qualifying exam in the fall semester of the 2<sup>nd</sup> year. All students, including MD/PhD students, are required to complete the qualifying exam within one year of joining the program. An idealized timeframe is provided to help students prepare for the exam.

### Summer (June-August)

1. Student will decide on a prospective thesis project. In consultation with the thesis advisor, the student will assemble a thesis committee of 3 faculty members (excluding the thesis advisor). The 3 thesis committee members must have a Graduate School appointment, which is the case if they are listed as BBS faculty (<http://bbs.yale.edu/people/>). At least one of the committee members must have a primary or secondary appointment in Cell Biology (see list of faculty at the departmental website <http://www.cellbiology.yale.edu/>). The thesis committee must be approved by the DGS. This committee will also act as the qualifying exam committee.
2. In consultation with the exam committee and thesis advisor, the student will define several (at least 3) research areas broadly relevant to the thesis project that the student would be expected to be knowledgeable about from reading the literature. Student is encouraged (but not required) to meet with thesis committee members for advice and guidance in reading the literature. For example, an informal reading period of a few sessions over several weeks could be set up in which the student can discuss key papers with the faculty member.
3. *By September 1*, the student will send to the exam committee and the DGS a 1-page summary of the proposal describing the question to be addressed, why it is important, and how it will be addressed. In addition, the student will list the research areas that s/he expects to become expert on. The committee will then have 1 week to communicate to the student, via the chair of the committee, its approval of the thesis and research topics. A date for the oral exam in the fall should be set.

### Fall (September-December)

1. Student will write the proposal from summer to early fall. The written proposal should be given to the exam committee 1- 2 weeks before the oral exam. If the written proposal is not satisfactory, the committee can postpone the exam.

2. Oral exam should be completed by the end of the fall semester (before winter break).

Students will arrange the schedule of their own exams within the timeframe above and are expected to complete the exam by the end of the fall semester. Students needing extra time to prepare for the exam (for example, a student who did a 4<sup>th</sup> lab rotation or who is taking a course during the fall semester) may be allowed to have an extension of the deadline or to take the exam in the following spring term, but only with approval from the thesis advisor and the DGS. Any student failing to complete the exam by the end of the 2<sup>nd</sup> year spring term will be put on academic probation with the possibility of termination from the program.

MD/PhD students must successfully complete the qualifying exam within one year of joining the PhD program. Failure to do so will result in academic probation with the possibility of dismissal from the PhD program.

While preparing for the qualifying exam, students are allowed to take time away from laboratory work but are not exempt from classes.

The DGS should be contacted if any serious problem is encountered during the qualifying exam period.

### **The research proposal**

One of the goals of the qualifying exam is for the student to learn how to write a compelling research proposal. The research proposal should be written in the form of a mini-grant proposal according to the format below. Although the original idea for the thesis project may have come from the thesis advisor, the student is primarily responsible for conceiving and writing the proposal. However, it is expected that the student will discuss and receive feedback about the proposal from the thesis advisor. The student should generate a best effort version of the proposal for the advisor to read, and enough time should be allowed for several rounds of revision. The advisor is expected to have read and approved the final version of the proposal before it is distributed to the qualifying exam committee.

Please follow the format below for the research proposal.

- 1) Title.
- 2) Specific Aims. State the specific purposes of the research proposal and the hypotheses to be tested. Should not be longer than 1 page.

- 3) **Background and Significance.** Sketch briefly the background to the proposal. State concisely the importance of the research described in the proposal by relating the specific aims to broad, long-term objectives.
- 4) **Research Design and Methods.** Describe the strategies and specific experiments to accomplish the specific aims. Potential experimental difficulties should also be discussed together with alternative approaches that could achieve the desired aims.

Preliminary results are not required but may be described if available.

- 5) **Literature Cited.**

The proposal should be single spaced in 12-point font with 1-inch margins and should be not more than 10-12 pages long, including tables, figures and references. The student should feel free to look at the proposals of other students who have passed the qualifying exam. The DGS also has copies of proposals that can be consulted.

### **The oral exam**

The thesis committee assembled earlier by the student will act as the qualifying exam committee. One of the committee members having an appointment in Cell Biology will act as chair and thus will be responsible for moderating the exam and for providing a report of the exam to the DGS (see Appendix for evaluation form). The thesis advisor may be present at the exam but cannot answer questions for the student.

Prior to the start of the oral exam, the committee may ask the student to leave the room temporarily so that it can go over the exam format and discuss any related matters. If the thesis advisor has chosen to be present at the exam, the committee may wish at this time to hear from the thesis advisor about the student's performance in the lab so far.

The oral exam starts with the student's presentation of the research proposal describing the problem to be addressed and the approaches, which should be prepared to take no longer than about 20 minutes (~ 15 slides). The actual presentation may take longer because the committee will interrupt with questions about the research proposal. The committee will also ask questions to probe the student's knowledge of the research literature, as well as basic scientific concepts, directly and broadly relevant to the proposal. The student should consult the qualifying exam evaluation form (see Appendix) to be prepared for the different areas where the student will be expected to demonstrate competency. Count on the exam taking up to about 2 hours. At the end, with the student temporarily out of the room and the thesis advisor also absent, the committee will discuss the student's performance in the oral exam as well as the

quality of the written proposal, and the chair of the committee will fill out the evaluation form (see Appendix). The student will return to the room to be informed of the committee's evaluation and recommendations, and given the opportunity to ask questions.

A student can receive an overall grade of Pass or Fail, or the committee may postpone its evaluation pending fulfillment of an additional requirement, e.g., revising the written proposal or writing a paper to remedy an inadequate knowledge of the literature. The committee may also make specific recommendations such as taking a particular course. The student failing the exam may have one more chance to pass the exam at a later time, depending on approval by the DGS and the faculty.

Some students have found it helpful to prepare for the oral exam by taking a mock oral exam involving other students and postdocs acting as the qualifying exam committee.

### **PROSPECTUS**

The prospectus is a statement of what the student intends to do for the dissertation, and an approved prospectus must be submitted to the Graduate School in order for a student to be admitted to candidacy. Because in Cell Biology the proposal for the qualifying exam is based on the student's thesis project, it is *de facto* the prospectus, and thus successful completion of the qualifying exam means the student's prospectus has been approved. After a student has passed the qualifying exam, the DGS will submit to the Graduate School a "Qualifying Exam/Prospectus Certification" for that student along with a copy of the prospectus. For this purpose, rather than writing a new document, students may provide to the DGS a copy of their qualifying exam proposal but with a cover sheet entitled "Prospectus" and containing all other information requested by the Graduate School not in the original written proposal (see Graduate School of Arts and Sciences Programs and Policies).

### **ADMISSION TO CANDIDACY**

"Admission to candidacy indicates that the department and the Graduate School consider the student prepared to do original and independent research" (from Graduate School of Arts and Sciences Programs and Policies). In order to be admitted to candidacy, the student must 1) fulfill all course requirements, 2) pass the qualifying exam, 3) have an approved prospectus, and 4) receive a positive evaluation on laboratory work at the first thesis committee meeting after the qualifying exam. When a student has met all of these requirements, the DGS will

submit to the Graduate School the “Certification of Admission to Candidacy” for that student. Admission to candidacy occurs between the 2<sup>nd</sup> and 3<sup>rd</sup> years. A student failing to be admitted to candidacy by the end of the 3<sup>rd</sup> year will not be permitted by the Graduate School to register for the following term.

### **THESIS COMMITTEE MEETINGS**

#### **Composition of the thesis committee**

Students and their advisors choose the faculty members of the thesis committee, which are approved by the DGS. The thesis committee must have at least one member who holds a primary or secondary appointment in the Cell Biology Department. One of these Cell Biology faculty members should be chosen to be the chair of the committee. Students may elect to have more than 3 faculty members of the thesis committee but at least 3 of them must have Graduate School appointments.

Students and thesis advisors may choose to alter the composition of the thesis committee in order to reflect changes in direction of the thesis project. Any changes must be approved by the DGS.

#### **One to two meetings per year is required**

Students must conduct yearly meetings with their thesis committee to chart the progress of their thesis research towards the completed dissertation. It cannot be over-emphasized how important is regularly scheduled thesis committee meetings for timely completion of the dissertation. An annual thesis committee meeting is required for registration in the following year. The deadline for the meeting is May 31. This date is chosen because the June faculty meeting is devoted to a review of the progress of all students in the program.

An exception to the May 31 deadline is made for 2<sup>nd</sup> year students. They should hold their first thesis committee meeting ideally about 6 months after the qualifying exam, which may be during the summer at the end of the 2<sup>nd</sup> year, unless otherwise recommended by the qualifying exam committee. For those students taking the qualifying exam later in the spring of the 2<sup>nd</sup> year, the first thesis committee meeting should be held by the fall of the 3<sup>rd</sup> year, and then another meeting should be held toward the end of the 3<sup>rd</sup> year. The first thesis committee meeting must be held within one year of the qualifying exam.

One requirement for admission to candidacy (see above) is a positive evaluation of laboratory work at the first thesis committee meeting after the qualifying exam. The student will receive a positive evaluation for demonstrating that s/he works effectively in the laboratory as reflected in the ability to conduct experiments that push a thesis project forward. The positive evaluation necessary for admission to candidacy may be received as early as the first thesis committee meeting in

the 2<sup>nd</sup> year following the qualifying exam but at the latest one year after the qualifying exam.

Students in year 4 and beyond are required to have 2 thesis committee meetings per year, roughly 6 months apart, one in the fall/winter and another in the spring/summer.

Thesis committee meetings can be held as frequently as deemed necessary by the thesis committee.

If it is impossible to schedule a meeting where all members of the committee are present, the student should nonetheless hold the meeting as long as 2 members can be present, excluding the thesis advisor. In this case, the student should arrange a one-on-one meeting with the missing faculty member at another time.

Before each meeting, students must prepare a two-page summary of work since the last committee meeting and plans for future experiments (with a timetable). The meeting may be postponed if the summary is found to be inadequate. Every year the DGS or Registrar will remind students to schedule a meeting, and students should notify the DGS or Registrar if they schedule a meeting date. They should also obtain a thesis committee evaluation form from Lisa Crotty (lisa.crotty@yale.edu), the Registrar, or print out a copy of the form provided in the Appendix to this handbook.

### **Format of thesis committee meeting**

Students should aim for a meeting that lasts not more than 1 hour. They should prepare a brief presentation of  $\leq 20$  minutes showing past work and describing future plans. The meeting will be most productive if the presentation is organized as a logical story based on key results, whether positive or negative, rather than being simply a list of every experiment that has been done. This way the meeting can focus on the most important issues, thereby maximizing the constructive feedback and advice that the committee can give to the student.

Prior to the actual start of the meeting, the student may be excused from the room for a short executive session involving the thesis committee and the thesis advisor. The meeting will then begin with the student's presentation, with discussion of the student's past and future work occupying the remaining time. At the end of the discussion, the student will again be excused from the room (unless instructed otherwise by the committee) while the chair of the committee fills out the thesis committee evaluation form in consultation with the other committee members and the advisor. The chair will discuss the evaluation with the student but with the thesis advisor absent from the room. The student should feel free during this time to discuss any issues or concerns that may not have been raised earlier during the meeting. The student should return the completed

form to the DGS or Registrar, after which copies will be distributed to the student, the thesis committee, and the advisor for their records.

### **Thesis committee evaluation**

The thesis committee evaluation form (see Appendix) is used to provide feedback about the student's progress and performance in thesis research.

To be admitted to candidacy, a student must receive an evaluation of at least "good" in all categories listed on the form at the first thesis committee meeting after the qualifying exam.

The thesis committee has the major responsibility of deciding when a student has done sufficient work for the Ph.D. and is ready to begin writing the dissertation.

### **INDIVIDUAL DEVELOPMENT PLAN (IDP)**

It is never too early for students to begin thinking about and planning for their future careers. Yale offers numerous resources to help them with career exploration and development (<http://bbs.yale.edu/Career/careerhome.aspx>). Students should create an "individual development plan" or IDP to help define and pursue their career goals. The AAAS sponsors a free online IDP tool called myIDP that students may choose to use (<http://myidp.sciencecareers.org/>). Students should discuss their career interests and goals with their thesis advisors. To facilitate such discussion, students are expected to create an IDP and to update it at least annually, and to report on their career development activities at each thesis committee meeting. In fact, the thesis committee evaluation form has questions specifically about careers that should be addressed.

### **THE DISSERTATION**

#### **When do you know you're finished?**

What qualifies as sufficient work for the Ph.D. (and thus for the student to be given permission to write the dissertation by the thesis committee)? The Ph.D. should represent a body of scholarly work that makes an original and publishable contribution to one's field. Thus, it is expected that a student's Ph.D. research will result in several papers, first-author as well as co-author, published in peer-reviewed journals. The minimal requirement for the Ph.D. is a first-author research manuscript at least submitted for publication by the time of the thesis seminar.

## Preparing and submitting the dissertation

Before beginning to write the dissertation, please download “Dissertation Submission Checklist” from the Graduate School website (see “Where to get forms” below). This document provides step-by-step instructions for preparing and submitting the dissertation. A key step is notifying the Cell Biology Registrar, at least two weeks before the submission deadline, of your intention to submit the dissertation so that the department can initiate the assignment of dissertation readers (see **Readers** section below).

It may take a couple of months to write the dissertation, or less time for students who have already published papers that will form the core of the dissertation. Published papers can be simply reformatted to form the core of the dissertation (including changing all the “we’s” to “I’s”), assuming that you were the principal writer of the papers. Please remember that the dissertation is expected to be a scholarly work of your own creation. Thus, if another person obtained a result shown in the dissertation, then the contribution of this person must be explicitly acknowledged in the text and figure legend. Moreover, if you wish to copyright your dissertation, you must obtain permission to reproduce any published materials (even if your own) in your dissertation. In addition, you should draw your own illustrative diagrams rather than using published ones with minimal modification.

Copies of the dissertation are distributed to the committee members for their comments, which should be addressed in the final version before its submission to the Graduate School. Committee members should be given adequate time, at least 2 weeks, to read and evaluate the dissertation.

## Deadlines

There are 2 deadlines for submission of the dissertation, one in October for a December degree and the other in March for a May degree. The Graduate School does not make any exception to these deadlines, which have been picked to give readers adequate time to evaluate the dissertation.

## Readers

Upon receipt, the Graduate School will send the dissertation out for evaluation by 3 readers, with at least 2 having tenure or a tenure track position at Yale. As Cell Biology does not require an outside reader (i.e., outside Yale), unlike some departments, 3 members of the thesis committee, except the thesis adviser, would be appropriate as readers. After all reader evaluation forms have been returned to the Graduate School and all requested changes to the dissertation have been made, the DGS acting on behalf of the entire Cell Biology faculty will sign the form recommending award of the Ph.D. degree. Then the Graduate School Degree Committee and finally the Yale Corporation will vote to approve conferral of the degree.

### **Thesis seminar**

Students are required to present a seminar on their thesis work. This seminar is usually scheduled just prior to submission of the dissertation. Like all other Cell Biology seminars, the thesis seminar will be open to the university community. The thesis seminar is conducted like a defense, so the thesis committee will meet with the student after the seminar. At this time, the thesis committee may ask questions beyond those asked at the end of the seminar. Then the student may be asked to leave the room while the committee decides whether the thesis work presented in the seminar and in the dissertation is acceptable for award of the Ph.D. degree. After making any changes to the dissertation requested by the committee, the dissertation is submitted to the Graduate School. Occasionally, it may be necessary to submit the dissertation before the thesis seminar (e.g., if it is not possible to schedule the seminar before the submission deadline). However, in this case, the student still has to give the thesis committee plenty of time to read the dissertation and must make all requested changes to the dissertation before submitting it to the Graduate School.

### **GRADUATION PRIZES**

The Department awards two graduation prizes established by gift from Harry Burr Ferris (B.A., 1887, M.D. 1890), who was the E. K. Hunt Professor of Anatomy in the Department of Anatomy, the predecessor to the current Department of Cell Biology. Graduation prizes are formally awarded at the Graduate School Convocation the day before Commencement in May.

The Harry Burr Ferris Prize of \$500 is awarded to a doctoral candidate in Cell Biology for a distinguished record of academic accomplishments. A distinguished record is evidenced by many of the following criteria: publications, a scholarly and well-written dissertation, fellowships and other awards, leadership and service activities that benefit the Department or the University.

The Ferris Chair's Prize of \$10,000 is awarded to a Cell Biology student for a doctoral dissertation completed within 4 years of matriculation at the University that demonstrates exceptional research and scholarship.

The DGS in consultation with faculty is responsible for selecting the recipient of the Harry Burr Ferris Prize, while the Executive Committee (composed of the current and former chairs as well as deputy chair of the Department) selects the recipient of the Ferris Chair's Prize.

Past recipients of the Harry Burr Ferris Prize:

2008 Mitchell Kundell (David Wells, advisor)  
Heather McCrea (Pietro De Camilli, advisor)

- 2009 John Goss (Derek Toomre, advisor)
- 2010 Hannah Chapin (Michael Caplan, advisor)  
Elisabeth Wurtmann (Sandra Wolin, advisor)
- 2011 Christopher Mader (Anthony Koleske, advisor)
- 2012 Elenoe Crew Smith (Diane Krause, advisor)
- 2013 Barbara Chaiyachati (Tian Chi, advisor)  
Chengcheng Jin (Richard Flavell, advisor)  
Ziba Razinia (David Calderwood, advisor)
- 2014 Nina Brahme (David Calderwood, advisor)  
Ryan Christensen (Daniel Colón-Ramos, advisor)  
Andrea Stavoe (Daniel Colón-Ramos, advisor)
- 2015 Nicole Darricarrere (Craig Crews, advisor)  
Eric Guo (Joan Steitz, advisor)  
Brant Webster (Patrick Lusk, advisor)
- 2016 Jeeyun Chung (Pietro De Camilli, advisor)  
Elise Jeffery (Matthew Rodehefer, advisor)
- 2017 Rui Dong (Pietro De Camilli)

### **MASTER'S DEGREES**

#### *Requirements for the Degree of Master of Philosophy (M.Phil.)*

The Master of Philosophy is awarded to Cell Biology graduate students en route to the Ph.D. A student is eligible for this degree after having been admitted to candidacy. No petition for the degree needs to be filed, as the Graduate School will automatically confer the degree at the next degree granting date (either December or May) after receiving the Certificate of Admission to Candidacy from the DGS.

#### *Requirements for the Degree of Master of Science (M.S.)*

This degree is normally granted only to students who are withdrawing from the Ph.D. program. To be eligible for the degree, a student must have completed at least 5 graduate-level term courses at Yale, including CBIO 602a (Molecular Cell Biology) and a seminar course, with a grade of Pass and at least one grade of Honors or three of High Pass. In addition to these 5 courses, the student must have received a Satisfactory grade in the following 5 courses: CBIO 900a (First-Year Introduction to Research—Grant Writing and Scientific Communication), CBIO 901b (First-Year Introduction to Research—Ethics: Scientific Integrity in Biomedical Research), CBIO 911a (First Laboratory Rotation), CBIO 912b (Second Laboratory Rotation), and 913b (Third Laboratory Rotation).

Please note that there are 2 deadlines, one in October and the other in March, for degree petitions to be submitted to the Graduate School. See below for where the petition can be obtained.

### **FORMS, FORMS, FORMS**

#### **Where to get forms**

Many of the forms that graduate students will need to fill out during their studies, including petitions for degrees, are downloadable at:

<http://gsas.yale.edu/forms>

#### **Dissertation progress report (online)**

Students who have been admitted to candidacy are required to submit an annual dissertation progress report (DPR) to the Graduate School, mapping out their achievements in the past year, and goals and timeframe for the upcoming year.

For training grant purposes, students are requested to list on this form any publications, meeting abstracts, and meetings and retreats attended.

Each year in April, students who have advanced to candidacy but not yet petitioned for the PhD will receive an email from the Graduate School notifying them to complete the online DPR. Once completed, the thesis advisor and the DGS will be notified to review and approve the report. A student who fails to complete the DPR at the end of the spring term will not be allowed by the Graduate School to register in the following fall term.

#### **Registration**

Registration is required to receive financial support, including stipend and health insurance, and to use University facilities. Students must register every term until the dissertation is submitted, but the Department will approve registration only for students making satisfactory progress toward the degree as indicated by a yearly evaluation of the thesis committee. Registration beyond the 6<sup>th</sup> year requires a "Petition for Extended Registration," which must be approved first by the Department and then by the Graduate School. However, the Department discourages and by no means guarantees registration beyond the 6<sup>th</sup> year. Moreover, the Department will not normally agree to evaluate dissertations submitted by degree candidates who are no longer registered.

Registration is accomplished by signing up for a course at the Online Course Selection website at the beginning of each term. Students who are no longer taking courses should sign up for one of the following "courses" most appropriate to their academic status: QUAL 999 Preparing for Qualifying Exam, CAND 999 Preparing for Admission to Candidacy, DISR 999 Dissertation Research-in-

Residence, or VAIR 999 Visiting Assistant in Research. Students carrying out research in absentia must file a written form with the Graduate School. Registration each semester is required to maintain all of the benefits of student status, including the stipend. Beginning the 5<sup>th</sup> year, students must submit the "Continuous Registration Form" to the Graduate School. The department will pay for the student's continuous registration fee.

### **FUNDING**

For the duration of their studies in the Cell Biology program and as long as they are in good academic standing, students will be given full financial support, including stipend, full tuition, and health coverage.

Students are supported during the 1<sup>st</sup> 3 years by NIH training grants or other university funds. Some students receive fellowships from the National Science Foundation. BBS students in the first year are requested to apply for the NSF fellowship, and BBS faculty members have an obligation to help students with the research proposal for the fellowship application. Students at the beginning of the 2<sup>nd</sup> year are still eligible to apply for the NSF fellowship, and 2<sup>nd</sup> and 3<sup>rd</sup> year students are eligible to apply for the individual pre-doctoral fellowship offered by the NIH. Cell Biology students are strongly encouraged to apply for any fellowship for which they are eligible, since being awarded a fellowship is considered a prestigious achievement.

After support from training grants and fellowships ends, the thesis advisor is responsible for providing full financial support, including stipend, tuition, and fees (health and registration).

### **DEPARTMENTAL TRAVEL MONEY**

Cell Biology students in years 4 and beyond (including MD/PhD students) are eligible for \$300 each year in travel money from the department to help defray the cost of attending a scientific meeting. Priority will be given to students who are presenting a talk or poster, but students who are not presenting may still qualify assuming they can provide a good justification for attending a particular meeting and assuming funds are still available. Students should contact the DGS to apply for the travel money. After the meeting, students receiving departmental travel money are required to provide to the DGS a short 1-paragraph summary of what they got out of the meeting.

Students in years 1-3 supported by training grants and university fellowships are eligible to receive comparable travel money from those sources. They should contact Lisa Crotty, the Cell Biology registrar, about requesting this money.

## **DEPARTMENTAL ACTIVITIES**

### **Progress Report**

The Cell Biology Department has a longstanding weekly Progress Report series in which graduate students and postdocs give talks about their research in front of the whole department. This is a great forum for everyone to hear and learn about the research going on in other labs, and for both graduate students and postdocs to hone their presentation skills. Every Cell Biology student who has passed the qualifying exam is expected to present a Progress Report talk each year beginning the 3<sup>rd</sup> year.

Progress Report is held on Fridays from 11 AM to noon during most of the year except for a short period in summer. Each speaker has 30 min for the talk and questions so should aim for a presentation of about 25 minutes. During the summer, Karin Reinisch ([karin.reinisch@yale.edu](mailto:karin.reinisch@yale.edu)) will request from each PI the names of lab members to be put on the progress report speakers list for the coming year. Students 3<sup>rd</sup> year and up are required to give a progress report every year and are automatically scheduled. It is the responsibility of the speaker, and ultimately of the speaker's PI, to find a replacement in case the speaker cannot speak on the assigned date.

Refreshments of bagels, muffins, and coffee/tea are served.

### **Seminars**

The Cell Biology Department sponsors a seminar series in which scientists from other institutions or from other Yale departments are invited to talk about their research. The seminar is generally held on a Tuesday at 1pm. Refreshments are available 15 minutes before the seminar. It is expected that all students will attend all of the seminars offered by the Cell Biology seminar series, regardless of topic.

A seminar committee is responsible for selecting seminar speakers, and for identifying hosts among departmental faculty, students, and postdocs. The Cell Biology Business Office is in charge of travel arrangements, seminar announcements, and meeting appointments for seminar speakers. Hosts are responsible for ensuring that their speakers have an enjoyable time while visiting the department.

Students and postdocs are also strongly encouraged to attend the lunch with the seminar speaker held immediately after the seminar, usually in room C225A

SHM. In addition to a free lunch, this is a great opportunity to meet the seminar speaker. Please contact the Business Office if interested in having lunch with a particular seminar speaker.

### **Retreat**

Once a year in the fall the department has a retreat featuring talks and a poster session as well as time for informal scientific discussions. In the past few years, the retreat has been held at the West Campus.

### **Mixer**

The department has a mixer on Friday 4:45-6:15 PM, held roughly once a month, featuring refreshments such as wine, beer, and cheese. Admission is free, and all are encouraged to attend!

## **GRADUATE EDUCATION COMMITTEE**

The Cell Biology Department has a graduate education committee of faculty and students that reviews policies, resolves issues, and makes recommendations and decisions pertaining to the Cell Biology graduate program. Currently, the faculty members of this committee are Daniel Colón-Ramos, Haifan Lin, and Patrick Lusk, while the student members are Bryan Leland (King lab), Beth Morse Luoma (Calderwood lab), and Maggie Sledd (Carroll lab).

## **CONTACTS**

For required signatures on forms and for help in resolving questions and problems with regard to working in the Cell Biology Department and to graduate studies at Yale, students should contact the following individuals.

### **Cell Biology DGS**

Karin Reinisch

Office/Lab: SHM C212A

Phone: 785-6469

Email: [karin.reinisch@yale.edu](mailto:karin.reinisch@yale.edu)

The DGS is responsible for administration of the graduate program and for overseeing the academic and research progress of all students in the program. The DGS also acts as liaison between the students and the Graduate School Dean's office. Students should feel free to contact the DGS to discuss any issue regarding their studies and research.

## Cell Biology Registrar

Lisa Crotty

Office: BCMM 254F

Phone: 737-4646

Email: [lisa.crotty@yale.edu](mailto:lisa.crotty@yale.edu)

The Registrar is the communication hub between students, the DGS, and the Graduate School, and assists the DGS in administering the graduate program. Lisa is also the contact for the departmental web site and organizes the Progress Reports.

## Cell Biology Business Office

Location: SHM C206

Fax: 785-7446

Trisha D'Errico, Lead Administrator 2

Phone: 785-5272

Email: [trisha.derrico@yale.edu](mailto:trisha.derrico@yale.edu)

Other staff: <http://www.cellbiology.yale.edu/about/administration.aspx>

## BBS

John Alvaro, Ph.D., Administrative Director

Office: College Place; 55 - 0100A

Phone: 785-3735

Email: [john.alvaro@yale.edu](mailto:john.alvaro@yale.edu)

Bonnie Ellis, Assistant Administrative Director

Office: College Place, 55 - 0100A

Phone: 785-5663

Email: [bonnie.ellis@yale.edu](mailto:bonnie.ellis@yale.edu)

## Graduate School of Arts and Sciences, Office of the Dean

Richard Sleight, Ph.D., Associate Dean

Office: Warner House, RM 313

Phone: 432-2744

Email: [richard.sleight@yale.edu](mailto:richard.sleight@yale.edu)

Dean Sleight oversees all graduate programs in the natural sciences.

## **GRADUATE SCHOOL ORGANIZATIONS AND RESOURCES**

### **Graduate Student Assembly (GSA)**

<http://www.yale.edu/assembly>

The Graduate Student Assembly (GSA) is the elected body of Yale students in the Graduate School of Arts and Sciences. The Assembly's goals are to (1) identify the needs and concerns of graduate students, consider possible solutions, and present these to the Dean and other administrators, (2) discuss and advise on changes to Graduate School policy proposed by the administration, and (3) provide a means for communication and deliberation both among graduate students and between grad students and other members of the university community. Student representatives are elected from each department in the Graduate School.

### **Graduate and Professional Student Senate (GPSS)**

<http://www.yale.edu/gpss/>

The Yale Graduate and Professional Student Senate (GPSS) is a student government organization representing over 5,000 graduate and professional students at Yale. Its goal is to foster interaction between graduate and professional students through the congregation of student groups at the Graduate and Professional Student Center at Yale (GPSCY), the sponsorship of academic, intellectual events, and social events, and through community service and charitable events. The GPSS influences the course of the University through, representation on University Committees, by expressing views of the student body to the administration, and by issuing statements of our position to the media and administration. The Senate stands at the intersection of subsets of the Yale Graduate and Professional Student community, Yale Undergraduates, Faculty and Staff of Yale University, Yale Alumni, and the New Haven Community.

Please consult the Programs and Policies bulletin of the Graduate School of Arts and Sciences for additional resources available to graduate students.

<http://www.yale.edu/bulletin/html/grad/introduction.html>