Student Handbook

Molecular Biology & Biochemistry

Graduate Student Handbook

Ph.D. Program

July, 2011

Department of Molecular Biology + Biochemistry

FOREWORD

This brief handbook is designed for graduate students who enter the Department of Molecular Biology and Biochemistry (MB&B) for their dissertation work after their first year in the Combined Program in Cellular Molecular Biology.

We warmly welcome those who are just joining the Department, and hope you will find the handbook a source of practical information that will help you in your academic and research endeavors.

Craig Walsh

Graduate Advisor, MB&B

Introduction

By the time you become part of our Department in your second year, you will have spent some time here on one or more rotations under the *aegis* of the Combined Program in Cellular Molecular Biology. You will also have passed your first-year preliminary examination. From the second year on, you are officially affiliated with our Department of Molecular Biology and Biochemistry, and will meet your teaching obligation and continued course program as a member of it. Therefore, we as a faculty and staff can help you with most of the questions and problems that you might encounter. This handbook tells you about the Department, the requirements of the academic program, and who to go to for specific matters. We are a coherent faculty that, by virtue of diverse research interests and long association, can give you a well-rounded background if you use the opportunities we provide.

IN THE LABORATORY: Your research advisor's laboratory is under his or her direction. Common to all laboratories is the need to familiarize yourself with handling hazardous and toxic materials, and to receive formal training and certification in the use and disposal of toxic and radioactive waste if you have not yet done so.

FACILITIES: The Bio Sci Computing lab at Natural Science I, Room 2144 is available to you if or when you need it. Many other common facilities and pieces of equipment are available to your laboratory, and you should familiarize yourself with them as you need them, beginning with training in their use. Please be sure to get permission or sign up for equipment; leave it clean; report any problems; and respect the needs of others.

General Information

DEPARTMENTAL OFFICE AND ADMINISTRATION

3205 McGaugh Hall

Fax (949) 824-8551

Chris Hughes, Chair
Rm. 3219 x4-8771
cchughes@uci.edu

Don Senear, Vice-Chair
Rm. 3230 x4-8014
dfsenear@uci.edu

Craig Walsh, Graduate Advisor
Rm. 3215 x4-8487
cwalsh@uci.edu

Morgan Oldham Student Affairs Officer
Rm. 3205 x4-6034 morgano@uci.edu

Bessy Varela, Department Administrator/Manager
Rm. 3205 x4-4739 bvarela@uci.edu

Rozane Beach, Operations Manager
Rm. 3205 x4-3510 rplee@uci.edu

Kathy Fritsch, Academic Personnel
Rm. 3205 x4-8510 kfritsch@uci.edu

Cam Tran, Financial Manager
Rm. 3149 x4-4926 camt@uci.edu

Carolyn Griffin, Department Assistant (A/V Equip., rooms, keys)
Rm. 3205 x4-4915 carolyng@uci.edu

Departmental Bookkeepers:

Hana Santos, Rm. 3221 x4-2209 hsantos@uci.edu

Kelly Schoby, Rm. 3221 x4-9226 kschoby@uci.edu

Please introduce yourself to any of these people when you join the Department if you have not already met them in other ways. In particular, Professor Craig Walsh and Morgan Oldham will be able to help you with a variety of matters concerning enrollment, progress, deadlines, and so forth during your graduate career.

The Department Office, Room 3205, has a Fax machine and a typewriter that you may use for legitimate business; however, the fax may not be used for <u>personal</u> faxes.

Please ask staff to instruct you in their use.

The photocopier in the office is for faculty only. However, you will be provided with a personal number by your faculty sponsor or laboratory to use at the copy machines on the 2nd, 4th and 5th floors. For copying in the libraries, a copy card will be provided, see your department bookkeeper.

TRAVEL

You may be traveling to meetings as a graduate student. You will need to apply for a UCI Corporate Visa Card to assist you with meeting registration costs and the payment of travel costs. Your reimbursement can be directed to your UCI visa (see your bookkeeper upon your return, with original receipts).

STIPENDS AND ENROLLMENT

You must enroll each quarter through TELE. You are expected to enroll full time (minimum 12 hours) each quarter according to the academic plan set out in the next section. Please enroll as early as possible. The Department will submit information for fee payment. This is <u>your responsibility</u> each quarter. A late fee of $25, increasing to $50, is assessed if you have not enrolled by the SECOND week of the quarter. The consequences of late registration are:

(i) You must pay the late fee, the Department is not responsible;

(ii) Owing to the non-student status, you will have federal deductions from your paycheck; and it affects your eligibility for housing.

(iii) You must use an add card to enroll in the courses.

Morgan in the Department office will help you with enrollment problems and records.

For US citizens who are non-residents of California, you should act to become legal residents of the state by the beginning of the second year. This reduces the tuition fees considerably, to everyone's benefit. The change of residency must be recorded in the Registrar's Office BEFORE the fee payment deadline in the Fall quarter of your second year. Documentation will be required, and you may call the Registrar's Office at 4-6124 for details. At the same time, our office should be informed of the change. Again, Morgan will help you with this matter.

For foreign students, tuition is reduced to the California resident rate after they advance to candidacy (see below). This reduction in rate is a very important saving for the grant that is paying the stipend, and therefore, advancement to candidacy is a goal to be achieved at the normal time (at the end of the third year) or earlier. The re-

duction in rate continues for three years thereafter; the original rate is then restored.

Every student receives a stipend from the Department on the same schedule, unless they are on a training grant. The stipends are set by the Department each year and carry with them the expectation that you will spend 100% of your time at your studies and research.

FINANCIAL AID

TRAINEESHIPS: Beyond stipends from Departmental sources, including Teaching Assistantships and research funds that support the student's laboratory, several Traineeships on a variety of NIH or other Training Grants are available. Most or all professors are listed as members of one or more training grants, on which their students are eligible for support. The Directors of the various Training Grants announce notice of openings to the faculty members, and students' sponsors make nominations of students. Appointment to a Traineeship is an honor, and such appointments may come with special obligations such as particular or additional coursework, or attendance at training grant meetings at which trainees present work in progress.

CAMPUS DISSERTATION FELLOWSHIPS: These are designed for students in the last quarter of their degree work. They are meant to free the student from other obligations, such as teaching that may interfere with timely completion of his or her dissertation. These fellowships are competitive and are announced once or twice each year by the Graduate Advisor.

TRAVEL ASSISTANCE: The School, Training Grants, and the Graduate Division all have modest funds for support of travel to meetings, particularly those at which students present their research. In addition, dissertation directors often have funds in their research grants to provide for travel to meetings or to other institutions for experimental work. To apply for travel funds from the School, email Associate Dean Mike Mulligan at rmmullig@uci.edu and provide him with the name of the meeting and describe how you will be involved, as a presenter, submitting a poster, or attendee.

OTHER FELLOWSHIPS: A number of UC and national fellowship programs provide support for graduate study. The student may take initiative in obtaining these

awards, and the Graduate Advisor will attempt to provide information about them as it appears.

ACADEMIC PROGRESS

The Department's academic requirements incorporate those of the Combined Program in Cellular Molecular Biology, your primary academic home during the first year.

Courses:

> **NOTE**: All courses must be passed by a grade of B or better, or by an S (satisfactory).

FIRST YEAR: During the first year, students are required to take three core courses, selected from a menu of options that cover fundamental concepts in molecular and cell biology, genetics and biochemistry. In addition, during the first two years of graduate study students may take elective courses relevant to their area of specialization. Certain tracks may have specific recommendations for Elective courses. Below is a summary of the first-year course options. Over the course of the first year, a student must select one course from each of the following general categories: "Molecules of Life", "Cells and Signaling", and "Integrated Systems and Genetics". The order of selection is not important, but selecting one course from each menu option is required. This menu of options allows the student, in concert with his or her advisor, to optimize the course curriculum to the student's research interests. In addition, all students in the program are required to take "Responsible Conduct of Research", currently offered in the Spring quarter.

Fall

Dept	Course #	Title	Code
MBB	204	Protein Structure and Function	ML
MBB	214	Lit in Protein	ML
DC	231B	Developmental & Cell Biology	CS
MBB	215	Fundmental Immunology	ISG
A&N	231D	Molecular, Cellular & Developmental Neurobiology	CS

Winter

Dept	Course #	Title	Code
P&B	252	Introduction to Proteomics	ML
Path	226	Topics in Experimental Pathology	ISG
DC	210	Advanced Developmental Genetics	ISG
MBB	203	Structure & Biosynthesis of Nucleic Acids	ML
MBB	213	Lit in Nucleic Acids	ML
MMG	235	Viruses and Cells	CS

Spring

Dept	Course #	Title	Code
P&B	232	Physiology of Ion Channels	ML
MMG	206	Regulation of Gene Expression	CS
BC	207	Advanced Molecular Genetics	ISG
BC	212	Signal Transduction & Growth Control	CS

Molecules of Life(ML)
Cells and Signals (CS)
Integrative Systems Genetics (ISG)

In addition, students doing rotations in MB&B will also enroll each quarter in the Mol Bio 200 (research), 202 (laboratory discussion), 201 (Departmental Seminar), 399 (Teaching), and 229 (Research in Progress), if applicable. Research-in-Progress gives students an opportunity to develop the skills necessary for effective scientific presentations. Students rotate weekly and all students are expected to present once a year.

STUDENTS ENTERING MB&B: Graduate students joining MB&B will be expected to com-

plete two out of three of the following courses prior to graduation: MBB203 (nucleic acids), MBB204 (proteins) and MMB 206 (Gene Regulation). If not completed in the first year, these can be taken in years 2, 3 or 4. Please speak with the Graduate Student Advisor, Craig Walsh, if you have questions."

SECOND YEAR: You will enroll in at least one more elective course in the second year. The choice is dictated in many cases by your academic track, by your research sponsor, or by the requirements of a Training Grant if you have support from one. A non-inclusive list of suitable electives is listed in the CMB website. Also, if you have not taken MBB 204, MBB 203 and MMG 206 in the first year, you are required to finish taking these three courses by the end of your fourth year. Again, each quarter, you must enroll in a suitable number of hours in each of the 200, 201, 202 and 229 series and, when serving as a Teaching Assistant, in Mol. Biol. 399 (University Teaching399 (University Teaching).

THIRD, FOURTH, FIFTH YEARS: In addition to the 200, 201, 202 and 229 series each quarter, you are required to enroll in one didactic course (not a journal club, lab discussion group, research tutorial or departmental seminar) during your third and fourth years. Beyond the courses listed on the Cellular Molecular Biology website, many others– even in other Schools - may serve your interests, and you may enroll in them with the approval of your dissertation director and the Graduate Advisor of the Department. Requirements for the fifth year are the same as for the third and fourth, with the exception that a didactic course is NOT required. Thus, you will be required to complete **3** didactic courses in years 2, 3 and 4, before your graduation.

Ph. D. DEGREE

TIME TO DEGREE POLICY: The policy of the Department of Molecular Biology and Biochemistry has been and continues to be:

- Advancement to Candidacy should be by the end of the third year. This is, you must pass your advancement before the Fall quarter that begins your fourth year (10th academic quarter).
- Completion of the Doctoral degree should occur before the end of your fifth year. That is, before the Fall quarter that begins your sixth year (16th academic quarter).
- Maximal time to degree is before the beginning of your eighth year (22nd academic quarter). After this time students are no longer eligible for non-instructional University resources.

PRELIMINARY EXAMINATION. At the end of the first year, students must demonstrate proficiency by passing a preliminary qualifying exam. The purpose of this exam is to verify that you have completed the goals of the CMB first-year program. During the exam, you will present a 50 min talk covering research that you have done in two rotation labs, followed by a 50 min chalk talk (no power-point is allowed) on studies that you proposed based on a published paper that you chose. The CMB website has a downloadable, detailed instruction. The possible outcomes of the exam are: Pass. Fail with an opportunity to retake the exam within one month (same committee). Possible outcomes are 1 and 3 on this list. Fail. The committee decision is referred to the Program Director for action. Students who pass the exam will normally move immediately to departmental Ph. D. Programs.

ADVANCEMENT TO CANDIDACY. During your second and third years, you will work to define a research problem suitable for your dissertation. Toward the end of the third year, you will write and defend a proposal for the thesis work that summarizes the preliminary work and gives a solid plan for the remainder of the dissertation. The form of the proposal is ideally that of an NIH proposal, in which the aims, background and significance, preliminary data, and proposed experiments are presented in that order. Please be concise with your writing within the current NIH R01 page limit (25 pages, single space, text and figures total).

The advancement examination is based on this proposal, and is carried out by a five-member committee approved by the Graduate Advisor. The committee includes your dissertation director and must have a majority of its members from the Department of Molecular Biology and Biochemistry (these may include those with joint appointments, but it does not include all Cellular Molecular Biology members). One member must be an "outside" member; that is, from another department of the Irvine campus and not holding a joint appointment with MB&B, and not working in the student's research area. The outside member can be chosen from any School on campus, or from any other department of the School of Biological Sciences or College of Medicine.

Advancement to candidacy represents the fulfillment of all requirements except continuing courses and a thesis. It is therefore contingent on having passed all courses with a B or better. If courses have not been passed satisfactorily, the first-year examination or remedial work must be cited in evidence of having gained additional competence in the area. In addition, your teaching commitment (3 courses; 2 lab, 1 lecture) must have been met.

Following is a guide to the process for advancing to candidacy.

Procedures for Advancing to Candidacy:

(i) Download the form (Ph.D. Form I) from the OGS website and complete it.

(ii) Consult with the Graduate Advisor to verify the fulfillment of requirements and selection of committee members;

(iii) Arrange the examination time and place (scheduling five faculty members is often a problem, particularly near quarter breaks and in the summer);

(iv) the examination is held;

(v) the form is signed by the student, the student's dissertation director, the Departmental Graduate Advisor (Professor Walsh) and the Associate Dean for Biological Sciences, Mike Mulligan; and

(vi) submit form to the Cashier's Office for processing. You will have to pay the advancement fee, but **keep your receipt**, and give it to Morgan Oldham for reimbursement.

If applicable, this form will contain or be accompanied by a memo from the Departmental Graduate Advisor that failure to pass courses with a B or better have been mitigated.

The advancement examination is a discussion of the feasibility, rationales, coherence, and importance of the work proposed, and is highly beneficial in continuing with the work. For that reason, the candidacy examination should not, despite a common temptation to do so, be delayed beyond the third year.

Dissertation Committee:

The members of the dissertation committee who will oversee further research progress are usually, but not always, chosen from among the members of the advancement committee. A minimum of three members are named and, again, a majority must hold appointments in the Department of Molecular Biology and Biochemistry. In many cases, all are Department members; in some cases, a fourth member from elsewhere on campus may be added to provide expertise in a particular area.

IMPORTANT: You are required to meet with your Dissertation Committee at least once a year until your defense, so that good progress can be confirmed. After each meeting, the "Graduate Student Annual Report" (GSAR) should be completed (please see Morgan for the GSAR form, sample attached). Return the completed form to Morgan.

DISSERTATION. The dissertation is the fruit of three or four years' work. It may be prepared in a variety of formats, the most common being in the form of separate chapters that will be or have been submitted for publication as research

papers. In some cases, printed papers are photocopied and bound with the other materials. In the case of papers with joint authorship, contributions of the Ph.D. candidate must be spelled out briefly.

The deadline for "filing" for the degree is during the quarter **PRIOR** to the one in which you expect to receive the degree. The office has the appropriate form (Application For a Degree.) Deadlines are published each year, and you must prepare to meet them in good time. These dates are posted in the Department Office and are available online.

The deadline for submission of the thesis is also published each year, and can be found in the Departmental Office as well as online. The submission process requires preparation of a penultimate draft for approval by the dissertation committee; corrections of the draft to accommodate the committee's comments; arrangement of a dissertation oral examination; and approval of format by the University Librarian, and (after the examination) submission of the unbound final draft to the Office of Graduate Studies. Bound copies are ultimately given to the Departmental office, your research director, and others who may wish to have them. Binding can be arranged through the office. Three copies are paid for by the Department. Additional copies must be prepaid.

DISSERTATION EXAMINATION. The dissertation examination includes a public, Departmental seminar, arranged by the student at a time when all members of his or her committee can attend. Discussion of questions asked at the seminar, and others the committee may pose thereafter, complete the examination.

IMPORTANT: BEFORE you set a date for your defense you must; 1) confirm with Morgan that all the requirements have been met for graduation, including completion of ALL necessary classes with a B grade or better, and 2) have had your final meeting with your dissertation committee and completed the GSAR1 (sample attached) form and submitted this form to Morgan. Early completion of these will avoid the possibility of an embarrassing cancellation of your defense. These requirements for graduation are now being **STRICTLY** enforced.

ADDITIONAL INFORMATION

FILING FEE: Under certain circumstances a Graduate Student may be eligible to pay a "Filing Fee", in lieu of registration for only one academic year. Please contact Morgan if you are considering the application of a filing fee during your last quarter at UCI.

M.S DEGREE: Generally, students are not admitted to the Department for a terminal M. S. degree in Molecular Biology and Biochemistry *per se*, although MB&B does offer an independent M. S. program in Biotechnology (see Departmental website). However, under certain circumstances this has been allowed, and some

students find it necessary or prudent to obtain an M. S. degree after entering the Ph.D. program in MB&B. The requirements for the first two years are the same with several exceptions. First, the second-year elective is not required. Second, while a thesis is required (this is the "Plan I" M. S. degree), it represents research of a smaller scope than that of the Ph.D. thesis. Third, the Department does not support Master's students financially, and the student must obtain support independently or from the sponsor of his or her research work. The Department will, however, consider support in the form of a Teaching Assistantship.

Approval of the thesis by three Department members (including the sponsor) is required. An application for the degree must be filed the quarter **BEFORE** the degree is granted. Forms are available in the Department Office.

For updated information please access our website at: www.rgs.uci.edu