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1. GENERAL INFORMATION

The Department of Developmental and Cell Biology is in the School of Biological Sciences at the University of California, Irvine

1.1 DEPARTMENTAL OFFICE AND ADMINISTRATION

- Key faculty and administrative personnel relevant to graduate students:
  
  **Prof. Ken W.Y. Cho**, Chair, 2212 Bio Sci 3, x42458, x44067, kwcho@uci.edu  
  **Prof. Kavita Arora**, Vice Chair, 4215 McGaugh Hall, x41087, karora@uci.edu  
  **Prof. Lee Bardwell**, Graduate Student Advisor, 2208 Nat Sci I, x6902, bardwell@uci.edu  
  **Andrea Wiley**, Department Manager 2104 Bio Sci 3, x44706, wileya@uci.edu  
  **Grace Kuei**, Payroll and Personnel 2102 Bio Sci 3, x44707, ykuei@uci.edu  
  **Lindsay Malter**, Graduate Administrator 2011 BS3, x41969, lmalter@uci.edu

- Other office administrative personnel:

  See http://www.ucidevcell.org/administration for a full listing

1.2 DEPARTMENTAL RESOURCES

- The department office (Rm 2011, Bio Sciences III) has a Fax machine available.
- For photocopying, you will be provided with a personal number by your faculty sponsor.
- For copying services in the libraries, you will need a copy card.
- Parking/Escort services are available 24/7, 365 days a year on campus, University Apartments and University Center. Call 824-SAFE (7233).

1.3 OTHER GENERAL INFORMATION

**EMERGENCIES:** You have access to fire, rescue and police at the 911 emergency number. The non-emergency number for campus police is 824-5223 (4-5223 from campus phones).

**LABORATORY USE:** Your research advisor's laboratory is under his/her direction. You need to receive formal training and certification in the use and disposal of toxic and radioactive waste. Other safety courses may be required as well, e.g., blood-borne pathogens.

1.4 OTHER CONTACT INFORMATION

- Department website: www.ucidevcell.org
- Graduate Division: www.grad.uci.edu
- Office of Research: www.research.uci.edu
- Mike Mulligan, Associate Dean of Graduate Studies, 5217 McGaugh Hall, x48433, rmmullig@uci.edu
2. ENROLLMENT

2.1 ENROLLMENT BASICS
You must enroll each quarter through TELE. You are expected to enroll full time (minimum 12 units) each quarter. **This is YOUR responsibility each quarter.** A late fee of $50 is assessed if not paid by the fee deadline, increasing to $50 if you have not enrolled by the second week of the quarter.

Normally the deadline is four weeks before the start of the Fall quarter. For the documentation required, call the Registrars office at extension x46124.

The consequences of late registration are:
- a) You must pay the late fee as described above.
- b) On non-student status, you will have federal deductions from your paycheck, which will affect your eligibility for housing.

2.2 CITIZENSHIP ISSUES AND ENROLLMENT
For US citizens who are non-residents of California, you should become a legal resident of the state by the beginning of the second year. This will reduce the tuition fees considerably. A change of residency must be recorded in the Registrar's Office BEFORE the fee deadline.

For foreign students, tuition is reduced to the California resident rate after advancement to candidacy. This reduction in rate is a very important savings for the grant that is paying the stipend.

2.3 MAXIMUM TERM TO DEGREE
Beginning with students entering in Fall 2010, the Graduate Dean will not permit students to enroll past their programs' maximum time to degree (7 years).

3. STIPENDS AND FINANCIAL AID

3.1 STIPENDS
Every student receives a stipend from the Department on the same schedule, unless they are on a training grant. The schedule changes when you move from a Gateway Program to a Department. This results in one-month gap with no pay (Gateway Programs pay at the beginning of the month in advance; the Departments pay at the end of the month in the arrears). Graduate students have health benefits and eligibility for student loans provided with full-time enrollment.

3.2 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. The directors of various Training Grants announce notice of openings to the faculty members and student sponsors who make nominations of students.

Campus/ School Dissertation Fellowships: These are designed for students in the last quarter of their degree work. These fellowships (e.g., President’s Dissertation Year Fellowship, Graduate Dean's Dissertation Fellowship) are competitive and are announced once or twice each year by the Graduate Student Advisor.

Travel: The school, Training Grants, and the Graduate Division have modest funds for support of travel to meetings. These funds are used for students to present their research. Dissertation Directors commonly have funds in their research grants to provide for travel to meetings or other institutions for experimental work.

Other fellowships: A number of UC and national fellowship programs provide support for graduate study. Students should take the initiative in obtaining these awards.

4. OUTLINE OF REQUIREMENTS AND TIMELINE

Years 2, 3, 4... until graduation
- Enroll in Journal Club & Seminar every quarter (See Section 5)
- Enroll in 200 and 203 series every quarter (See Section 5)

Year 2
- Meet with a faculty committee (see Section 6)
- Two quarters of 50% Teaching Assistantships (see Section 7)

Year 3
- Pre Advancement (Fall or Winter, see Sections 8 & 9)
- Advancement to Candidacy Exam (Spring or Summer, see Sections 8 & 10)

Years 4, 5, 6... until graduation
- Annual Tune-Up Meeting with your Thesis Committee (see Section 12)
- RIP talks (see Section 13)

Year 5, 6 or 7
- Pre -Defense Meeting (see Section 14)
- Thesis Defense (see Section 15)
5. COURSE REQUIREMENTS

NOTE: All courses must be passed with a grade of “B” or better, or by an S (satisfactory). Students receiving a “C” or lower must repeat the course before they can advance.

First Year
- Students must enroll for a minimum of 12 units each quarter and take appropriate courses. The exact required courses may vary in different gateway programs.
- In addition, students must participate in the TA Professional Development Program (www.tltc.uci.edu/taTraining).

Second Year and beyond
- You must enroll for a minimum of 12 units (see Section 2).
- Every quarter you must attend the weekly Department Seminar (Thursdays at 11 AM) and enroll in the corresponding graduate course Dev Bio 290 (DEVEL & CELL BIOL, 2 units).
- Every quarter you must enroll in and attend the departmental journal club, Dev Bio 206 (ADV TOP IN CELL BIO, 2 units), or another suitable journal club (see “Journal Club”, below).
- Every quarter that you are a Teaching Assistant, you must enroll in Dev Bio 399, University Teaching (4 units).
- Every quarter you must enroll in a suitable number of units in the 200 and 203 series. Which section you enroll in depends upon who your thesis advisor is.
- It is your responsibility to enroll as directed above. Repeated failure to enroll in the appropriate courses may result being placed on academic probation the following quarter.

Journal Club
- Every quarter you must enroll in and attend the departmental journal club,
  - Dev Bio 206 ADV TOP IN CELL BIO, 2 units
  - or another suitable alternate journal club.
- A suitable alternate journal club will have an associated graduate course (in which you must enroll), and a requirement for student presentation and participation.
- Examples of suitable alternate journal clubs include
  - Dev Bio 203 SYSTMS BIO JRL CLUB
  - Mol Bio 293 CANCER BIO JNL CLUB
- In the spring quarter, students in the department are strongly encouraged to enroll in Dev Bio 206 rather than an alternate journal club, because student Research in Progress talks are emphasized in spring quarter. Thus, this is a great opportunity for you to get more familiar with the other students and research projects in the department.
- If you enroll in an alternative journal club, you may still be required to attend a particular session of Dev Bio 206 in order to present a “Research in Progress” talk to your peers (see Section 13). This will most likely occur in the spring quarter, and may mean that you need to miss a class of the alternative journal club in which you are enrolled. If you enroll in journal club other than Dev Bio 206 in the spring
quarter, please make sure that this arrangement is acceptable to the instructor of that journal club.

- With permission of the Graduate Student Advisor, you may opt out of Journal Club in the quarter in which you plan to defend your thesis. However, if you fail to defend that quarter as planned, you will not receive further opportunities to opt out.

6. YEAR 2 MEETING WITH FACULTY

- Selection of a thesis advisor with a primary appointment in the Dept. of Developmental & Cell Biology makes you a member of the graduate program in Developmental and Cell Biology. Students typically join the department at the start of their second year in graduate school, the first year having been under the auspices of a gateway program such as CMB or MCSB.
- During your second year you should, in conjunction with your advisor, identify an interesting, tractable research problem, which will result in a thesis over the following 3-5 year period.
- You should focus on developing the knowledge and technical skills necessary to successfully complete the proposed project.
- At the start of your second year, you will meet informally with a small group of faculty to discuss your research project. This will most likely take place at the Department’s annual retreat.

7. TEACHING ASSISTANTSHIPS

- The School of Biological Sciences requirement is 2 quarters of 50% TAing. A 50% TA appointment corresponds to 20 hours per week over the course of the quarter.
- Typically, students will be required to fulfill their teaching obligations during their second and third years.
- Some students, particularly those on training grants, may do 2 quarters of 25% TAing in place of 1 quarter at 50%.
- The Department will determine which quarters and for what courses you must TA, based on departmental needs.
8. PRE-ADVANCEMENT & ADVANCEMENT COMMITTEES

8.1 OVERVIEW
In your 3rd year, you will need to form a committee of 5 faculty that will serve as your Pre-Advancement Committee and as your Advancement to Candidacy Committee.

8.2 ACADEMIC SENATE MANUAL
The online version of the
THE MANUAL OF THE IRVINE DIVISION OF THE ACADEMIC SENATE
can be found at
http://www.senate.uci.edu/manual
Graduate students will be particularly interested in the following section:
PART II. REGULATIONS OF THE IRVINE DIVISION,
Chapter IV: Doctor of Philosophy Degree Requirements

8.3 CANDIDACY COMMITTEE
The relevant regulations can be found in the online manual of the Academic Senate,
PART II, Chapter IV, Regulation 918. Candidacy Committee.
http://www.senate.uci.edu/senateweb/default2.asp?active_page_id=726
Candidacy Committee: Key facts
- 5 faculty members. Choose them in consultation with your thesis advisor.
  - 1 Chair (your thesis advisor, must be Dev & Cell member)
  - 2 additional Dev & Cell faculty members
  - 1 “Outside” faculty member
  - 1 flexible faculty member
- Chair must hold primary or joint faculty appointment in Dev & Cell
- At least two other members must hold primary or joint faculty appointments in Dev & Cell.
- At least one member (the “outside member”) may not hold either a primary or joint faculty appointment in Dev & Cell.
  - This member is typically from another department in the School of Biological Sciences, or from the College of Medicine, but may be from any department at UCI, including math, chemistry, physics, computer science, engineering, etc.
- The final member can either be faculty in Dev & Cell, or may be an additional outside faculty member.
- All members need to be a full UCI “senate faculty” members (not Researchers, Project Scientists, Post-docs, etc.; not non-UCI faculty), unless an exception is granted by Graduate Division.
- It may be possible to have a Researcher, Project Scientist, Post-doc, etc. serve as a non-voting, non-signing, 6th member of your committee, if that person has unique expertise relevant to your thesis project. If you are considering this option, contact
the Graduate Student Advisor (Prof. Bardwell) to discuss.

**8.4 WHEN TO FORM YOUR COMMITTEE**

You should form your Advancement Committee in the summer between your 2nd and 3rd years, in the fall quarter of your 3rd year, or (at latest) by the winter quarter of your 3rd year. You will need to have your committee formed in order to take the pre-advancement exam.

**9. PRE-ADVANCEMENT MEETING**

- The pre-advancement meeting is a Department-level requirement.
- The goal of this meeting is to provide input and feedback on your thesis proposal ideas from the faculty at an early date. This may influence the direction and focus of your Advancement to Candidacy proposal.
- It is your responsibility to schedule this meeting.
- **This meeting must be held in the fall or winter quarter of your third year.**
- Your Pre-Advancement Exam Committee is the same as your Advancement Committee (see Section 8, above).
- You must submit a 1-2 page outline of your thesis proposal (brief Introduction and Specific Aims) to each member of the committee. This document is due no later than 72 hours prior to the scheduled meeting time.
- At the meeting, you will make an oral presentation (with slides) of your research progress and future plans (as outlined in your written document).
- The proper form to report this meeting is the “Department of Developmental & Cell Biology, University of California, Irvine PRE-ADVANCEMENT & ANNUAL THESIS COMMITTEE MEETING REPORT FORM”, which can be obtained from the Dept office or downloaded from the Dept web site.
  - Where it says “Type of this meeting (circle one):”, circle “pre-advancement”.
  - Take this form with you to the meeting, and make sure it gets filled out and signed.
  - Then take the signed form the Department office (give it to Lindsay Malter).
  - Until the signed form is turned in, your Pre-Advancement does not count.

**Scheduling Issues.** Every effort should be made to hold the pre-advancement exam when all 5 Advancement Committee members can be present. However, for pre-advancement only (i.e. NOT for advancement), it is permissible to hold the exam if only 4 of 5 committee members are able to be present.
10. ADVANCEMENT TO CANDIDACY EXAM

10.1 CANDIDACY COMMITTEE
See Section 8, “Pre-Advancement and Advancement Committees”

10.2 ADVANCEMENT TIMING
Advancement MUST occur in the winter, spring or summer quarters of your 3rd year. You must have completed your advancement by the start of the fall quarter of your 4th year.

10.3 GOAL OF EXAM
The purpose of the exam is to determine if the student is capable of Ph.D. quality research. This encompasses two related aspects: 1) defining a tractable research problem; and 2) demonstrating requisite knowledge, skills and experimental sophistication to convince the committee that there is a high probability for the project to succeed.

The Advancement to Candidacy Exam is a University-level requirement.

10.4 ADVANCEMENT FORMAT: WRITTEN PROPOSAL

Written Proposal. A written proposal in NIH format should be prepared by the candidate and distributed to the committee at least 1 week prior to advancement.

Written Proposal Format. The proposal should follow conventional format for a federal grant. The manuscript should be prepared with proper scientific nomenclature, as would be acceptable to a granting agency. The document should be approximately 10-15 pages (single-spaced with 1 inch margin, Arial font 12) excluding references. The document should include the following sections.

Specific Aims (1 page). It is the single most important section in the proposal. It’s the master plan for the rest of the proposal and the most difficult section to write. The logic of each aim must be compelling and the answers must be important to the field. Whenever possible, test a hypothesis in the specific aim title. The Specific Aims should not be a list of experiments. Avoid writing aims that can be viewed as “a fishing expedition”.

Introduction (2-3 pages). Problems and objectives of your research should be clearly stated and placed in the context of a broader field. An extensive bibliography should be included. This section should lead the reader to each question or hypothesis that you’re testing in each aim. Significance of the project should be also included here.

Preliminary results (3-5 pages). This section should include your research efforts. Appropriate discussion and methods are important; you should show how you can perform all of the necessary techniques and methods. Please embed figures into the text and include a brief legend. Figures and Tables must be absolutely clear and visible.

Proposed research (3-6 pages). The proposal should address the feasibility of various
experiments and point out caveats that might be encountered and how these could be circumvented. Be sure to include positive and negative controls, analysis and interpretation, pitfalls and alternative approaches, and somewhat detailed methods. Outline your priority.

10.5 ADVANCEMENT FORMAT: ORAL PRESENTATION

The oral portion of the exam will involve the presentation of background material, preliminary results and a summary of proposed experiments. The presentation should be ~40-45 minutes (30-40 PowerPoint slides), although committee discussion will usually interrupt the flow. During this time the committee will evaluate whether or not you have the ability to formulate questions on important biological issues. You may be asked to discuss experimental design, required controls for an experiment, and possible artifacts or caveats. You will be expected to place the significance of the research project in a broad context, and demonstrate in-depth knowledge of the discipline in which you are working.

The exam should be scheduled for a three hour time period, although it will typically last about two hours.

10.6 PAPERWORK

You will need Ph.D. FORM I: ADVANCEMENT TO CANDIDACY–PH.D. DEGREE. This form can be downloaded from Graduate Division http://www.grad.uci.edu/forms/

Upon successful completion of your Advancement, the form must be signed first by your committee (at the advancement meeting), then by the Graduate Student Advisor. You should put asterisks next to those members of your Advancement Committee who will serve on your Thesis Committee. Students and faculty must also complete the conflict of interest statement on page 3, and check the “has /has not” box. You must then turn in this paperwork to the department office. It will then be forwarded to Assoc. Dean Mulligan for his signature, and then to Graduate Division.

10.7 POSSIBLE OUTCOMES AND CONSEQUENCES

There are four possible consequences of the exam: 1) you pass the exam and should expect to go into 1-4 more years of lab work to complete the Ph.D. thesis; 2) you do not pass, which may have several consequences ranging from having to prepare a new advancement document OR providing additional experimental results OR additional tutorial or course work to remedy any deficiencies; 3) you may be transferred to a Masters degree program; 4) you may be terminated from the graduate program.

If a terminal masters is recommended, the student will have 3 months in which to complete the research and to write a Masters Thesis.
11. THESIS COMMITTEE

11.1 OVERVIEW
Once you have advanced, your Thesis Committee will provide guidance on your research project and will ultimately judge whether or not you have satisfied the requirements for a Ph.D. degree at your Thesis defense. Your thesis committee will generally be your Advancement to Candidacy Committee, or a subset of this committee.

11.2 THESIS COMMITTEE
The relevant regulations can be found in the online manual of the Academic Senate, PART II, Chapter IV, Regulation 920. Doctoral Committee.
http://www.senate.uci.edu/senateweb/default2.asp?active_page_id=727

Thesis Committee: Key facts
• At least 3 members. Choose them in consultation with your thesis advisor.
• Chair is your thesis advisor. S/he counts as one of the members. Chair must hold a primary or joint faculty appointment in Dev & Cell.
• A majority of the members (2 out of 3, 3 out of 4, etc.) must hold primary or joint faculty appointments in Dev & Cell.
• There is no requirement for an outside member. In principle all 3 members could hold primary appointments in Dev & Cell.
• Your Thesis Committee will generally be a subset of your Advancement to Candidacy Committee.

11.3 WHEN TO FORM YOUR COMMITTEE
You will form your Thesis Committee at the end of your Advancement. On the Advancement form you will indicate those members of your Advancement Committee who will remain on your Thesis committee by putting an asterisk (*) next to their names. Adding members who were not on your Advancement Committee requires approval of the Graduate Student Advisor. Once the Committee is formed, the members remain in place until you graduate. Any changes (dropping, adding, or replacing members) requires approval of the Graduate Student Advisor.

12. ANNUAL THESIS COMMITTEE (TUNE-UP) MEETINGS

12.1 TUNE-UPS: KEY FACTS
• Annual tune-up meetings are a Department-level requirement.
• They must be held AT LEAST once a year, every year between advancement and graduation.
• The goal of these meetings is to provide input and feedback on your thesis progress, and allow you to obtain approval for any proposed changes in direction.
• It is your responsibility to schedule these meetings.
• Tune-up meetings are held with your Thesis Committee.
• You must submit a 2-3 page Progress Report to each member of the committee. This document is due no later than 72 hours prior to the scheduled meeting time.
• At meeting, you will make an oral presentation (with slides) of your research progress and future plans (as outlined in your written document).
• The proper form to report this meeting is the “Department of Developmental & Cell Biology, University of California, Irvine PRE-ADVANCEMENT & ANNUAL THESIS COMMITTEE MEETING REPORT FORM”, which can be obtained from the Dept office or downloaded from the Dept web site.
  o Where it says “Type of this meeting (circle one):”, circle “tune-up”.
  o Take this form with you to the meeting, and make sure it gets filled out and signed.
  o Then take the signed form the Department office (give it to Lindsay Malter).
• If you fail to file your committee report by the end of each academic year, your registration in the subsequent year will be blocked and you will need to pay the penalty.

12.2 TUNE-UP FORMAT
The tune-up meeting should be designed to remind the committee of your research area and the major questions your work addresses, and review the experimental studies you have done and hope to do in the next 12 months. A suggested outline for the presentation is 30-45 min. with background, results, and plans. A series of experiments to be accomplished for the Ph.D. and a tentative end date will be discussed.

The student's file containing the advancement proposal, previous research summaries (if applicable), and previous comments of the committee (if applicable) will be brought to the meeting.

13. RESEARCH IN PROGRESS TALKS
• You will be called upon to give a Research in Progress (RIP) talk approximately once a year, either …
  o in journal club (in front of other students and the journal club faculty leader).
  o as part of the weekly Dept seminar (in front of whole department).
• The format of the talk is 20-25 minutes for presentation plus 5 minutes of Q & A.
• Practice your talk so that it does not go over 25 minutes.
• When the journal club faculty leader or the Departmental RIP Organizer assigns you to a RIP slot, it is not a request, it is an assignment. The only valid reasons for asking for an alternative time slot are (a) if you are attending an out-of-town scientific meeting; (b) if you have a teaching assistant duty that meets at the same time as your scheduled RIP.
14. PRE-DEFENSE MEETING

- Your final tune-up meeting is your Pre-Defense Meeting.
- This must be held no more than 6 months prior to your Defense*
- At this meeting your Thesis Committee will assess if you are ready to defend within the next 6 months.
- The proper form to report this meeting is the “Department of Developmental & Cell Biology, University of California, Irvine PRE-ADVANCEMENT & ANNUAL THESIS COMMITTEE MEETING REPORT FORM”, which can be obtained from the Dept office or downloaded from the Dept web site.
  - Where it says “Type of this meeting (circle one):”, circle “pre-defense”.
  - Take this form with you to the meeting, and make sure it gets filled out and signed.
  - Then take the signed form the Department office (give it to Lindsay Malter).
  - You will not be allowed to schedule your defense unless this form is on file and current.
- The Pre-Defense meeting is a Department-level requirement.

*unless an exception is obtained from the Graduate Student Advisor.
15. THESIS DEFENSE

15.1 PH.D. REQUIREMENTS – THESIS RESEARCH

It is expected that a student receiving a Ph.D. in the department of Developmental & Cell Biology will be able to identify a significant body of work that they have been primarily responsible for, with regard to the formulation of the experiments, the acquisition and interpretation of the data, and the writing of a manuscript(s). It is also expected that this work will constitute a novel contribution to the body of scientific knowledge, suitable for publication as a research article in one or more peer-reviewed journals. Obviously, the clearest way to demonstrate that this goal has been achieved is to have one or more first-author or co-first author papers published or in press at the time of defense. However, the thesis committee may in some cases approve the defense if the work is clearly of publication quality, even if it has not yet been published. The thesis committee may also decide that substantial contributions to two or more non-first author manuscripts/projects meet the requirements towards a Ph.D. degree.

15.2 MAXIMUM TERM TO DEGREE

- In general, students in the Department defend in their 5th or 6th year.
- You should make every effort to defend your thesis before the end of your 7th year.
- Beginning with students entering in Fall 2010, the Graduate Dean will not permit students to enroll after their 7th year.

15.3 THESIS DEFENSE

You must submit a final draft of your written Thesis to your Committee at least a week before the Defense. Failure to meet this requirement will result in your defense being cancelled or postponed, and you will be responsible for any fees that result.

All Thesis Defenses must be scheduled through the Dept. office. The office will check to make sure that the Pre-Defense Meeting requirement has been met.

You must defend your thesis by providing a formal 1-hour seminar that is open to the public, which will be followed by a closed committee meeting to evaluate your performance. All committee members should be present during the thesis defense. If any Committee members cannot attend, this requires pre-approval from the Graduate Student Advisor. And, at a minimum, there will need to be 3 committee members in attendance for the Defense to be official.

15.4 PAPERWORK

You will need “Ph.D. Form II - Signature Page / Report on Final Examination for the Ph.D. Degree” which can be obtained from http://www.grad.uci.edu/forms/. Contact Graduate Division regarding other requirements, thesis formatting issues, etc. When your thesis and paperwork has been signed and turned in, you are officially a Doctor of Philosophy!