

## Molecular Cell and Developmental Biology Graduate Program 2016-2017

The Ph.D. track in Molecular Cell and Developmental Biology (MCD) is designed to prepare students for productive careers in biological research and teaching. This training program emphasizes applying diverse approaches, including biochemistry, genetics, genomics, and imaging, to addressing critical questions in molecular, cellular, and developmental biology. Interdisciplinary research is encouraged and supported by a diverse group of faculty from the Departments of Molecular Cell & Developmental Biology (MCD), Chemistry & Biochemistry (Chem), Microbiology & Environmental Toxicology (METX), Biomolecular Engineering (BME), the Santa Cruz Institute for Particle Physics (Physics), and Ecology & Evolutionary Biology (EEB).

### MCD Faculty

James Ackman	Visualizing structured activity throughout the developing vertebrate brain
Manny Ares	Mechanisms and regulation of splicing machinery; structure and function of small RNAs
Needhi Bhalla	Meiotic chromosome dynamics
Hinrich Boeger	Chromatin structure and gene regulation
Barry Bowman	Membrane biochemistry, genetics, and molecular biology
Susan Carpenter	Long non-coding RNAs in innate immunity
Bin Chen	Molecular control of neuronal identity and connectivity in mammalian brains
David Feldheim	Topographic mapping in vertebrates/CNS
Grant Hartzog	Chromatin and transcription
Lindsay Hinck	Molecular basis of neuronal chemotropism
Melissa Jurica	Structural approaches to large macromolecular complexes
Rohinton Kamakaka	Transcriptional silencing and insulators
Doug Kellogg	Coordination of cell growth and cell division
Harry Noller	Ribosome structure and function; RNA structure; RNA-protein interactions
Michael Rexach	Structure and function of the nuclear pore complex
Jeremy Sanford	Post-transcriptional control of gene expression
Bill Saxton	Cytoskeletal motors and active transport processes
Susan Strome	Chromatin and germ-granule regulation of germ cell fate and development
Bill Sullivan	Cell cycle, cytoskeleton, and host-pathogen interactions
John Tamkun	<i>Drosophila</i> developmental genetics; regulation of gene expression
Zhu Wang	Cell of origin and circulating tumor cells in prostate cancer
Jordan Ward	Probing <i>C. elegans</i> development, cellular differentiation, and parasitic disease
Al Zahler	Pre-mRNA splicing and micro RNA function
Martha Zuniga	Regulation of immune responses in health and disease
Yi Zuo	Functions of glia at the synapses in the mammalian nervous system

### MCD Affiliates

Vicki Auerbach Stone (METX)	Innate immune responses to the human pathogen <i>Yersinia pseudotuberculosis</i>
Rebecca Dubois (BME)	Structure, function, and engineering of virus proteins
Camilla Forsberg (BME)	Mechanisms of stem cell fate decisions
Ed Green (BME)	Human evolutionary genetics and genome assembly
David Haussler (BME)	Computational biology
Scott Lokey (Chem)	Bioorganic chemistry, cyclic peptides, cell cycle and signaling
Todd Lowe (BME)	Large-scale approaches to studying whole-genome biology
Karen Ottemann (METX)	Environmental responses of pathogenic bacteria
Carrie Partch (Chem)	Molecular mechanisms of circadian rhythmicity
Seth Rubin (Chem)	Biomolecular structure and mechanism
Bill Scott (Chem)	Structure and function of RNA, proteins, and their complexes
Beth Shapiro (EEB)	Population dynamics and changes in diversity in response to environment
Alexander Sher (Physics)	Development of experimental techniques for the study of neural function
Michael Stone (Chem)	Structure and dynamics of nucleic acids and protein-nucleic acid complexes
Fitnat Yildiz (METX)	Mechanism of persistence and survival of <i>Vibrio cholerae</i>

## Administrative Structure

### Two committees guide the MCD graduate program:

#### Graduate Admissions Committee (GAC for Admissions)

The Admissions Committee is comprised of 3-4 program faculty plus 1-2 student representatives. Responsibilities include reviewing applications, planning recruiting activities, accepting students, and developing offers of support. Student representatives must be in the Ph.D. program and have already advanced to candidacy. Student representatives will be selected by the Admissions Committee based on student nominations or volunteers.

#### Graduate Advising Committee (GAC for Advising)

The Advising Committee is comprised of 3-4 program faculty. Responsibilities include student orientation and advising, arranging rotation assignments, evaluating and approving oral examination topics, assigning oral examination committees, ensuring that Thesis Advisory Committee meetings are held yearly, and allocating University support for continuing students.

## Application and Admission to the MCD Ph.D. Program

### Deadlines

The application deadline is sometime in early December for admission to the program in the fall of the following academic year. Application procedures and information are available on the MCD track web page (<http://pbse.ucsc.edu/about/application.html>). On-line applications are available at <http://graddiv.ucsc.edu/>. After the deadline, files are reviewed by the Admissions Committee. Late applications are accepted only in exceptional circumstances and subject to available resources. The Admissions Committee will review no applications after April 30 of each academic year.

### Admission criteria

The Admissions Committee evaluates candidates based on numerous indicators of potential, which include but are not limited to the following:

- Evidence of research potential and commitment to research in the statement of purpose
- Previous research experience
- Evidence of research potential in letters of recommendation (3 required)
- GRE scores: both general and subject (Biology, Biochemistry, or Chemistry) exams
- GPA
- Grades in relevant undergraduate courses
- Evidence of quantitative and analytical skills
- Evidence of ability to communicate in writing
- Indications of special expertise, experience, or cultural perspectives that the student may contribute to our program
- Performance in interviews

### Admission process

After evaluation of each file, the Admissions Committee ranks the applicants. The number of offers made can fluctuate from year to year, depending on the relative strength and size of the applicant pool, and resources available. The MCD Biology program is committed to supporting all of its graduate students for the 5 years of a normal degree. Therefore, our total number of offers is guided by the resources (e.g. Teaching Assistant (TA), Graduate Student Researcher (GSR), Fellowships, etc.) that we expect to have available.

The top ranked applicants are contacted by telephone and invited for a formal interview visit organized by the Admissions Committee prior to any offer. Many interviews are held over a 2-day period in January or February. Prospective students meet with MCD Biology faculty and students. Feedback from the interview is used to determine offers. The Graduate Division formally notifies prospective students of the offer by March 15. Students are required to accept or decline the offer by April 15.

### **International students**

Because of limited resources to cover out-of-state tuition, which remains in effect for the duration of the degree, relatively few international students are admitted to the program. The University will cover a significant proportion of the out-of-state tuition after a student advances to candidacy. Consequently, students are encouraged to advance after successful completion of the Oral Qualifying Examination, to minimize tuition expenses to themselves and the department.

## **Getting Started**

### **General advising**

In the 1st year, the MCD Advising Committee and the faculty who supervise rotations are responsible for providing academic and research advice. After students join their thesis lab, then the thesis advisor assumes guidance responsibilities. Students are always welcome to seek additional advice from the Advising Committee, especially concerning procedural issues. Sarah Amador, the Graduate Coordinator in the MCD Biology Office, provides administrative support to all MCD students.

### **Email**

All MCD graduate students will have an email account set up for them by the time they arrive for fall quarter. The address for each student is typically last name@ucsc.edu (i.e. jones@ucsc.edu). The email address for each graduate student is included in a departmental alias, mcdgrads@ucsc.edu. The majority of communications with students from the department office will be done through email; students should develop the habit of checking email at least once a day.

### **Mailboxes**

A mailbox will be assigned to rotation students in the Sinsheimer Laboratories mailroom. After students join their thesis lab, their mail will be directed to the laboratory mailbox. All campus mail addressed to the student will be delivered to that location. The student may also use that address for outside mail related to their student career. Students should use their home address for personal mail, bills, etc.

### **Office supplies**

Graduate students should purchase their own office supplies for use in classes. The MCD Biology office does not provide those supplies. Students serving as a teaching assistant (TA) for a course may obtain supplies needed to perform their TA duties from the appropriate office. Such supplies might include overhead transparencies and markers for discussion sections, pens to use in correcting papers, and paper for documentation. After students join their thesis lab, they should consult with the lab P.I. about funding for supplies.

### **Photocopying**

There are photocopiers available on the 2nd and 3rd floors of Sinsheimer Laboratories for instructional and personal copying. A dedicated card is issued to the instructor of each course, for use by the instructor and the TA(s). After students join their thesis lab, they should consult with the lab P.I. about funding for photocopying. For personal copying, students may purchase copy cards at the Science or McHenry Library.

### **TA assignments**

At the end of each academic year, graduate students and their advisors are surveyed about their teaching needs for the next academic year. Teaching assignments are made by balancing financial needs of students, past performance and assignments, requests of the instructors, and the needs of the department. Every effort is made to accommodate everyone's preference. Students should feel free to communicate with the Graduate Coordinator (Sarah Amador) about their teaching preferences. In addition to attending and assisting in lectures, TAs are generally expected to lead discussion sections and to hold weekly office hours.

### **Financial support**

The MCD Biology program strives to support graduate students for up to 5 years. Support is provided in the form of Graduate Student Researchships (GSRs), Teaching Assistantships (TAs), and a limited number of fellowships. Graduate advisors generally support their students during the summer as GSRs.

# Ph.D. Program in the MCD Track

Timetable for the Ph.D. degree (\*required course)

## Year 1

<u>Fall</u>	Advisory meeting with the MCD Advising Committee Bio200A* Critical Analysis of Scientific Literature Bio200B* Advanced Molecular Biology Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio297* Rotation research
<u>Winter</u>	Bio200C* Advanced Cell Biology Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio297* Rotation research Selection of thesis laboratory
<u>Spring</u>	Bio200D* Advanced Developmental Biology Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Academic progress report

## Year 2

<u>Fall</u>	Advisory meeting with the MCD Advising Committee Bio292* MCD Monday Seminar and Bio 291* MCD Friday Seminar Bio297* Thesis research Selection of orals outside topic and submission of abstracts on inside and outside topics Selection of orals committee Constitution of and meeting with Thesis Advisory Committee
<u>Winter</u>	Bio289* Practice of Science (training in the Responsible Conduct of Research) Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio 297* Thesis research Preparation of orals proposal
<u>Spring</u>	Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio 297* Thesis research Submission of orals proposal to committee Oral examination Academic progress report

## Year 3

<u>Fall</u>	Meeting with Thesis Advisory Committee at least once per year Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio297* Thesis research
<u>Winter</u>	Bio290 Career Planning Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio297* Thesis research
<u>Spring</u>	Bio292* MCD Monday Seminar and Bio291* MCD Friday Seminar Bio297* Thesis research 3rd Year Talk Advancement to candidacy Academic progress report

## Year 4 or 5

<u>Fall</u>	Participation in seminar/discussions for training in the Responsible Conduct of Research
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### **1st year student orientation**

Newly admitted students are expected to arrive early in the week before classes begin to participate in orientation. The campus provides a general orientation for new graduate students. This orientation is strongly recommended, as it provides useful general information that would be difficult to acquire elsewhere. The PBSE program provides an in-house orientation that includes biosafety training, computer resource orientation, and an introduction to our science library. A PBSE research conference and welcome dinner at the beginning of the quarter provide a great opportunity to meet faculty and continuing graduate students.

### **Advising interviews**

Students accepted into the Ph.D. program meet individually with members of the Advising Committee during the 1st week of Fall quarter (typically on orientation day) to review their academic background and plan a curriculum for 1st year. In addition, students may meet individually with the Advising Committee during Winter and Spring quarters of their 1st year for informal feedback on their progress and to provide feedback to the Advising Committee on the program.

### **Language requirement**

Proficiency in a foreign or computer language is not a requirement for the MCD Ph.D. program.

### **Teaching requirement**

Students are required to serve as teaching assistants (TAs) for a minimum of 2 quarters during the degree. However, students should be aware that some faculty members require their students to TA once per year in order to extend their graduate student support resources. Students are encouraged to TA for 2 different courses to obtain more experience and knowledge. Duties should require no more than 20 hours a week and will likely include weekly office hours and sections, as well as grading, proctoring exams and preparation of course material for distribution (e.g. handouts, taping lectures). Graduate students are not expected or permitted to write narrative evaluations, although their comments may be solicited and incorporated by the instructor.

### **Course work**

MCD students must take the graduate core curriculum (Bio200A, 200B, 200C and 200D) for a letter grade. All students must take Bio289 (Practice of Science) in their 2nd year. In addition to these courses, MCD Ph.D. students are required to take at least 2 additional graduate level courses (not including Bio280 and Bio290 level courses) prior to completion of the thesis. These may be taken within MCD Biology or, if appropriate, from offerings in other departments, such as Chemistry and Biochemistry, Computer Sciences, Microbiology and Environmental Toxicology, and Biomolecular Engineering. Graduate elective courses may be taken for Satisfactory/Unsatisfactory instead of a letter grade. A list of approved elective courses is available from the MCD Graduate Coordinator (Sarah Amador); the Advising Committee may approve other elective courses on a case-by-case basis. The Advising Committee will remind students of this requirement at the beginning of each year, and the MCD Graduate Coordinator will notify them of course offerings that fulfill the elective course requirement. When graduate students are evaluated on a Satisfactory/Unsatisfactory basis, (for example, in Bio289, Bio291, Bio292, and Bio297), a passing performance corresponds to the letter grade of B or better, in accordance with the grading policies of the graduate division.

### **Graduate core courses**

Graduate core courses must be taken for a letter grade: A for excellent, B for satisfactory, and C or F for unsatisfactory. Bio200A will typically have 2 instructors, while Bio200B, 200C and 200D will each typically have 3-5 instructors. Students will receive feedback from each of the instructors on that instructor's portion of the course.

#### Bio200A Critical Analysis of Scientific Literature

Offered in Fall quarter. The course initiates students into reading primary literature with a more critical eye. Students evaluate the goals and approaches of papers, interpret figures and findings, compare their interpretations to those of the authors, and evaluate the overall significance. Papers are selected to highlight both classic and current important investigations and to provide examples of both impeccable and flawed science. Performance is evaluated on the basis of participation in class discussion and written class assignments.

#### Bio200B Advanced Molecular Biology

Offered in Fall quarter. This course offers in-depth coverage of the structure, function and synthesis of DNA, RNA, and proteins, the roles of macromolecules in the regulation of information flow within cells, and the key biochemical and genetic technologies utilized in the field. In general, each week, introductory lectures cover the background

information for the topic, a detailed reading list is provided, and a class discussion is then held, focusing on one or two recent papers. Most weeks, students are also assigned a problem set or written paper. Performance is based on participation in class discussions, performance on the written problem sets and papers, and/or exams.

#### Bio200C Advanced Cell Biology

Offered in Winter quarter. This course offers in-depth coverage of topics in cellular and sub-cellular organization, structure, and function. Emphasis is on current research problems and biochemical and genetic approaches to those problems. The course organization is similar to 200B, and performance is evaluated on the basis of participation in class discussions, paper presentations, written assignments, and/or exams.

#### Bio200D Advanced Developmental Biology

Offered in Spring quarter. This course offers in-depth coverage of topics in cell, tissue, and organism development, focusing on cell fate determination, stem cell behavior, and neuronal organization and function. Emphasis is on current research questions and genetic and biochemical approaches to addressing those questions. The course organization is similar to 200B and 200C, and performance is evaluated on the basis of participation in class discussions, oral presentations of papers or topics, written assignments, and/or exams.

### **Rotation selection**

The purpose of rotations is to provide students with diverse research training in 3 different laboratories, and to allow students and faculty to determine whether they can establish a productive collaboration. Before the beginning of each rotation period, 1st year students submit to the Graduate Coordinator (Sarah Amador) a ranked list of 5 faculty names and optionally a brief explanation of why they are interested in those faculty. Before submitting their choices, students should talk to faculty regarding potential projects and whether the faculty will be taking rotation students. Faculty may not request that certain students rotate with them. Rotation assignments are made by the Advising Committee. Students are generally assigned their 1st choice, unless there are multiple students who list the same 1st choice. In that case, students are given their 2nd choice. Faculty are not permitted to make any promises to students regarding permanent positions in their lab, officially or unofficially, until the end of all 3 rotations. Discussions regarding permanent positions in labs may begin after the final set of rotation talks at the end of Winter quarter. Students may not rotate in laboratories in which they have previously carried out work prior to entering the Ph.D. program, whether as an undergraduate, volunteer, or technician, unless special permission is granted. Students should enroll in Bio297 Research Rotations on a Satisfactory/Unsatisfactory basis.

Occasionally, a student may not find a suitable laboratory at the end of 3 rotations. They may select a 4th laboratory for a Spring quarter rotation with the permission of the Advising Committee and the rotation advisor. Laboratories outside the program may be selected but, in this case, the student may be considered to have left the program unless determined otherwise prior to the 4th rotation.

### **Summer rotations prior to Fall quarter enrollment**

Graduate students may do a Summer rotation if they can find a faculty member who can provide financial support during the summer. A Summer rotation may not be extended into a Fall rotation.

### **Rotation talks and posters**

At the end of each 6-week rotation, 1st-year students present brief talks or posters on the goals of and progress on their rotation projects. Typically, each talk is 6-8 minutes with an additional 2 minutes for discussion, but times may vary depending on class sizes.

### **Evaluation of rotation performance**

Performance in each rotation is graded as satisfactory/unsatisfactory and summarized in a narrative evaluation by the rotation advisor. Performance is evaluated on the basis of research effort and progress, intellectual mastery of the project, and performance in the talk. Faculty should submit evaluations in a timely manner.

### **Faculty responsibility to rotation students**

While rotation students may work closely with one or more members of the laboratory, the primary responsibility for supervision lies with the faculty member. The faculty advisor is encouraged to meet regularly with the rotation student to discuss their progress. Faculty should also attend the rotation talk. If unable to do so, another MCD faculty member should be asked to attend the talk and provide an evaluation.

### **Selection of a thesis laboratory**

No specific discussion of thesis laboratory choice is permitted between faculty and students until notification by the Advising Committee at the end of Winter quarter. When notified, students may approach faculty members to discuss the possibility of joining their group. Students may elect to join a laboratory in which they have not rotated. Students who are unable to secure a thesis laboratory should contact the Advising Committee to seek assistance in scheduling a possible 4th rotation. Students who are unable to secure an advisor to sponsor their thesis research are considered to be in unsatisfactory academic standing, and may not be allowed to continue in the program.

### **Co-sponsorship of MCD Ph.D. students**

Co-sponsorship of MCD graduate students is not a formal option, regardless of whether one or both sponsors are members of the MCD graduate program.

### **Seminars**

The MCD Biology Department sponsors several regular weekly seminar courses. All graduate students are required to register and attend.

#### MCD Monday Seminar (Bio292)

These are held weekly during Fall, Winter, and Spring quarters on Mondays between 12:00 and 1:05 PM. Speakers are usually invited from other institutions. Graduate students and postdocs are usually invited to meet with the invited speakers, schedules permitting.

#### MCD Friday Seminar (Bio291)

These are held weekly during Fall, Winter, and Spring quarters on Fridays between 12:00 and 1:05 PM. Speakers are often from inside the program and include postdocs, 1st year and 3rd year students, and graduating students.

### **Failing a course and academic probation**

Students who fail any course, including an undergraduate course or rotation assignment, must meet with the Advising Committee to review their progress. At that time they will be placed on academic probation. If their progress does not improve after an additional quarter, they will likely be asked to leave the program. All failed courses must be made up at the next available opportunity.

### **2nd year advising meeting**

Early in Fall quarter, the Advising Committee meets with 2nd year students to discuss their progress, 2nd year coursework, training in the responsible conduct of research, and preparation for oral exams.

### **Training in the Responsible Conduct of Research (RCR)**

NIH recommends and our program requires two Responsible Conduct of Research (RCR) training experiences during Ph.D. training. The 1st RCR training experience in our program is our Responsible Conduct of Research course entitled Practice of Science (Bio289), taken by graduate students during their 2nd year. The course includes readings about and discussion of keeping accurate and durable records; forms and consequences of fraud, plagiarism, and other forms of academic misconduct; honest reporting of data; how grants and papers are reviewed; what earns authorship; conflict of interest; working with collaborators; humane and appropriate use of animals in research; and the impact of biases toward culture, race and gender on the practice of science. The 2nd RCR training experience is participation of senior graduate students (in their 4th or 5th year) in 5 seminars and guided discussions led by UCSC and visiting faculty and expert staff on such topics as implicit bias, the ethics of working with stem cells, and dual-use research.

### **Individual Development Plans (IDPs)**

Individual Development Plans (IDPs) are designed to help students reflect on their training and career goals, self-assess their skills and competencies, discuss their goals and competencies with their mentor, and develop short- and long-term training goals. The MCD program offers 3 different IDP templates. Students may use any of the 3 templates or customize one to better suit their particular goals. IDPs should be initiated and driven by the student. Students are required to fill out at least 2 IDPs during their years in the graduate program: the 1st one in Years 1-3 and the 2nd one in Years 4-5. Students should give a copy of each IDP to the Graduate Coordinator (Sarah Amador).

### **Career Planning course**

MCD Biology recently designed a Career Planning course (Bio290) for 3rd year graduate students. This course includes working on IDPs; panel discussions on diverse careers in biotechnology, academia, and other areas; and sessions with visitors who will offer guidance on preparing for various career paths. This course is not required but strongly recommended.

### **Selection of original research proposal topics for the oral examination**

In preparation for the oral exam, students are asked to submit a short summary of 2 research proposals (as described below) for approval by the Advising Committee no later than the end of Fall quarter. Approval of the outside research summary is contingent on the proposed research being sufficiently different in system and experimental approach from prior research (rotations, prior work experience, and thesis topic).

### **Selection of oral examination committee**

The oral examination committee comprises 3 members of the MCD program plus 1 tenured faculty who is not a member of the MCD Biology department. The student's research advisor will not be a member of the exam committee. The inside members of the orals committee are assigned by the Advising Committee based on oral exam topic areas and distributing assignments fairly among faculty. The outside member is chosen in consultation with the student and advisor, and must be a tenured faculty member (either an Associate or Full Professor) either from a different discipline from UCSC or a tenured member of the same or a different discipline from another campus. Tenured UCSC faculty from other departments who are affiliated with our MCD Graduate Program may serve as outside orals committee members. Scientists from a non-academic environment require a petition for exception.

### **Avoidance of apparent conflict of interest**

Formal evaluation of a student may lead to an apparent conflict of interest for a faculty member. Such situations can include, but are not limited to, serving on an Oral Exam committee or Thesis Advisory Committee for the student of a spouse or significant other. In such situations where an apparent conflict of interest could occur, the faculty should recuse him/herself.

### **Plagiarism - definition, guidelines, and consequences**

The UCSC Code of Student Conduct states: "Plagiarism is defined as the use of intellectual material produced by another person without acknowledging its source. This includes, but is not limited to: 1) copying from the writings or works of another into one's academic assignment without attribution, or submitting such works as if it were one's own; 2) using the views, opinions, or insights of another without acknowledgement; or 3) paraphrasing the characteristic or original phraseology, metaphor, or other literary device of another without proper attribution." In assignments for class and when writing research articles and grants, students *must* express ideas in their own words and must give credit to the sources of the ideas.

If a case of plagiarism is discovered, the instructor will generally not give credit for the assignment, and the Department Chair and the Graduate Dean will be notified of the incident. The Advising Committee, the instructor, and the student will meet to ensure that the student understands what went wrong, what the correct approach would have been, and the consequences of future incidents. After a 2nd incident of plagiarism, the program will recommend to the Department Chair and the Graduate Dean that the student be expelled from graduate school.

## **Oral Examination**

### **Written proposals**

A written proposal is required on each of 2 different topics, 1 on the student's research, and the 2nd on a research topic not directly related to the student's past or present research but clearly under the general scope of MCD Biology. The proposals are meant to provide practice in writing research proposals for postdoctoral fellowships or other funding opportunities, and to provide a starting point for the oral exam. Each proposal (2-3 pages not counting references) should state the question being addressed or the hypothesis being tested, summarize the factual and conceptual basis for the proposal, and briefly describe the experimental approach. Each project should address a significant research question. The proposal not directly related to the student's research may have a fairly ambitious scope. However, the proposal on the student's research should have a scope consistent with the normative time for Ph.D. training. Students are provided with examples of written proposals by the Advising Committee as a guide in the Fall quarter preceding their oral exam.

Dissertation research proposal (also known as the "inside" proposal). This proposal will reflect the student's current thesis research and represent a research plan for accomplishing the thesis research. Students may consult with faculty members and others in preparing this proposal if they wish, but the writing must be entirely the student's.

Outside research proposal. This proposal will be on an area of research clearly outside the area of the student's dissertation, but within the general area of MCD Biology. It should be an original proposal, written and conceived of independently, but

students may consult with faculty, other students, and experts in the field. Faculty discussing proposals with students should promote scientific discussion, rather than coach the student. The Advising Committee must approve the subject of this proposal in advance. This proposal challenges the student's scientific creativity, and is designed to expand the student's area of expertise beyond the area of the dissertation research.

### **Oral exam timeline**

Early October	Call for oral proposals
Early December	Students submit to MCD Graduate Coordinator and the Advising Committee 1-2 paragraphs describing their thesis research, and 1-2 paragraphs describing their proposed outside research proposal
Mid December	Students submit to MCD Graduate Coordinator and the Advising Committee a proposed oral examination committee
Early March	Students schedule their oral exam for the Spring quarter
Spring quarter	Students submit their proposals to their examining committee no later than 2 weeks prior to the exam date
End of May	Oral exam must be completed

### **Oral examination format**

The committee meets for 5-10 minutes prior to the start of the examination to review the student's file and discuss any specific issues relevant to the examination. The student is called in and asked to give a short (~10 minute) presentation for one proposal - they are encouraged to use the whiteboard, but are not allowed to bring prepared overheads or PowerPoint presentations. They may be interrupted at any time during this presentation and asked to elaborate on or clarify points. This process is then repeated for the 2nd proposal. The oral exam may also cover scientific areas other than those directly concerned with the research proposals. The examination typically takes 2-3 hours, after which the student is asked to leave the room. The committee discusses the performance and comes to a consensus. The student is invited back in and informed of the outcome of the examination. Students pass or fail - there are no conditional passes. The quality of the written proposal alone is not sufficient to merit passing. A passing performance requires demonstration of the ability to design and execute an independent research project and to orally defend ideas during the discussion with the examining committee. Students are generally expected to formulate and evaluate hypotheses, as well as design experiments that will test those hypotheses.

If the student passes, s/he may nevertheless be advised to take further coursework. If the student fails, s/he may be given the option of re-taking the examination with the same committee after appropriate preparation and guidance. If a student fails twice, s/he must leave the program. A terminal Master's degree may subsequently be awarded, provided that the student has satisfied the requirements for the Master's degree, including submission of a written thesis and a defense. A written summary of the oral exam outcome is prepared by the chair of the oral exam committee, and reviewed and signed by all committee members. A copy is provided to the student and a copy placed in their file.

## **Progress Toward a Thesis**

### **Selection of the Thesis Advisory Committee**

Students should assemble and meet with their Thesis Advisory Committee during their 2nd year. The Thesis Advisory Committee should be selected by the student in consultation with their thesis advisor. The committee comprises the advisor plus at least 2 members of the MCD Graduate Program. A majority of the members must be members of the UCSC Academic Senate. While outside members specializing in the thesis research are permitted, they are not mandatory. Outside members must be tenured members of an academic institution.

Students must meet with their Thesis Advisory Committee at least once per year, starting in the 2nd year and until completion of the Ph.D. degree. The committee will provide continuing guidance throughout the development of the thesis, will provide ongoing assessment of the student's progress, and will evaluate the completed dissertation.

### **Graduate student academic progress reports**

The Graduate Division requires an annual report of progress for every Ph.D. student. A standardized form is supplied by the MCD Biology Graduate Coordinator (Sarah Amador), which is filled out and signed by the advisor and student. These forms are mandatory. The deadline is the end of May each year.

### **Advancement to candidacy**

Advancement to candidacy occurs by the end of the 3rd year (9 quarters). Students must give a full research seminar (45-50 min talk followed by questions) in a Friday Seminar (Bio291) slot. This should be attended and evaluated by the Thesis Advisory Committee. A passing evaluation requires demonstration of a good understanding of their project and background knowledge, and a clear presentation of their questions or hypotheses, tests of those, and progress to date. A passing evaluation leads to advancement to candidacy. Students have an additional 3 years (9 quarters) to complete their degree within normative time. (Note: International students, who remain "out-of-state" until advancement to candidacy, are encouraged to give their seminar before the beginning of the 3rd year, to minimize the fee costs to themselves and the department. In this case, students will have an additional 4 years (12 quarters) to complete their degree within normative time.)

### **Target time and normative time**

The target time for the Ph.D. is 5 years. The normative time for the Ph.D. degree within the University of California is 6 years. Students who fail to complete their thesis within this time must request an extension from the Graduate Division. A written request signed by the student and advisor detailing the timetable to finish should be countersigned by the Advising Committee chair prior to submission to the Graduate Dean. Multiple extensions may be considered. If the Ph.D. degree is not awarded within 7 years from the date of advancement to candidacy, the student's candidacy shall lapse and the student will be required to pass a new oral qualifying exam prior to submitting the dissertation or undergo such other formal review as the student's department shall direct, and the result of this examination or review shall be transmitted in writing to the Graduate Council (Academic Senate Regulation 18.6).

### **Preparation of the thesis**

When the student's advisor and Thesis Advisory Committee have agreed that the student has achieved a level of scholarship, independence, and research competence worthy of a Ph.D. and when the student has produced significant and publishable results that address an important question(s), the student may proceed with "writing up" according to the guidelines prescribed by the University Library and the Graduate Division. The dissertation is of critical importance, because it reflects the candidate's ability to do independent research at a high level of scholarship and creativity. The dissertation should make clear that the candidate is familiar with and able to critically evaluate previous work done in his or her specialty field, and that the candidate has made a significant contribution to knowledge, at least part of which is of a quality and quantity worthy of publication. The publication goal of Ph.D. students in the MCD graduate program is at least 2 1st-author or co-1st-author papers in peer-reviewed journals. The outline of the thesis should be approved by the Thesis Advisory Committee prior to preparation of the thesis. The thesis should be provided to the committee no less than one month prior to the thesis defense date. The thesis defense should comprise an open seminar given in the MCD Friday Seminar (Bio291) or equivalent forum. The Graduate Coordinator (Sarah Amador) can assist in coordinating thesis defense dates with the Thesis Advisory Committee. After the seminar, the Thesis Advisory Committee will meet with the student to discuss the thesis and any changes to the thesis required for completion. Upon submission of the final thesis, the committee will sign the cover page and grant the Ph.D. Formal award of the Ph.D. is made by the Graduate Division. Summer thesis defenses are discouraged, since no formal seminar series is in place during the summer.

## **Summary of Formal Ph.D. Requirements**

1. All students must enroll in the core curriculum (Bio200A, 200B, 200C and 200D). Some may additionally enroll in Bio100A Biochemistry, Bio115 Eukaryotic Molecular Biology, and/or Bio105 Genetics their 1st year. Enrollment in Biochemistry, Molecular Biology, and/or Genetics is recommended if a student has not had a course in that subject in the past 2-3 years, or if they earned a C or poorer in the course.
2. Students must take 2 additional approved graduate courses prior to submission of the thesis. These need not be MCD Biology courses. Students must also complete the Practice of Science (Responsible Conduct of Research) course (Bio289) in their 2nd year, and a 2nd training in the Responsible Conduct of Research in their 4th or 5th year. Following is a list of approved graduate courses, and some of the participating instructors. Students may petition the Advising Committee for approval of courses not included below.

Bio201	RNA Processing, M. Ares, M. Jurica, J. Sanford
Bio203	Ribosomes and Translation, H. Noller
Bio204	Chromatin and Transcription, H. Boeger, G. Hartzog, R. Kamakaka
Bio205	Epigenetics, S. Strome, J. Tamkun

Bio206	Introduction to Stem Cell Biology, B. Sullivan
Bio206L	Current Protocols in Stem Cell Biology, D. Feldheim
Bio207	Population Genetics
Bio208	Cellular Signaling Mechanisms, D. Kellogg
Bio214	Advances in Cancer Biology, L. Hinck
Bio215	Applied Statistics for Molecular, Cell, and Developmental Biology
Bio226	Advanced Neuroscience, Y. Zuo
Bio228	Developmental Neurobiology, B. Chen
AMS156*	Linear Regression
AMS202*	Linear Models
AMS205B*	Intermediate Classical Interference
AMS256*	Linear Statistical Models
BME110	Computational Biology Tools
BME130/Bio182	Genomes
BME210	Applications and Analysis of Microarrays
BME220	Bioinformatics
BME230	Computational Genomics
BME237	Applied RNA Bioinformatics
Chem200A	Advanced Biochem: Biophysical Methods
Chem200B	Advanced Biochem: Protein Structure and Function
Chem200C	Advanced Biochem: Structure and Function of Nucleic Acids
Chem230**	Grant Writing
EE215	Micro-Electro-Mechanical Systems (MEMS) Design
METX202	Cellular and Molecular Toxicology
METX206A	Advanced Microbiology
METX210	Bacterial Pathogenesis
PDP**	Training in teaching offered by the Institute for Scientist and Engineer Educators (ISEE)

\* Students who have had no or very little Statistics should audit or take AMS 7 (5 credits) and perhaps also AMS 7L (2 credits) to learn the basics, before taking 1 of the graduate level courses.

\*\* Students who take Chem 230 Grant Writing and participate in the Professional Development Program (PDP) may count only 1 of those toward additional graduate coursework.

- All students rotate in at least 3 different research laboratories during the 1st 2 quarters of their 1st year. This does not apply to “direct admit” Ph.D. students who are not required to rotate.
- All students present a rotation talk or poster at the end of each rotation.
- Because teaching experience is a requirement of the Ph.D., all students serve as teaching assistants for a minimum of 2 quarters in 2 courses during the course of their graduate studies, as part of their academic training. This may include 1 or more quarters of TAship during the 1st year.
- In order to remain in good academic standing, students must maintain a normal course load. MCD Biology students are expected to work full-time toward their degrees. This means enrollment in at least 15 units of credit each quarter.
- Faculty submit narrative evaluations for each course for all students. Annual academic progress reports on each graduate student are requested by the Graduate Coordinator (Sarah Amador) with academic progress to be reported to the Graduate Division. Failure to maintain satisfactory status may result in a recommendation from the MCD Biology department to the Dean of the Graduate Division for dismissal from the program.
- Students take the Oral Qualifying Examination at the end of their 2nd year.
- If a student does not pass the Oral Qualifying Examination, the examination must be rescheduled within one academic quarter. A student may retake the examination only once. A 2nd failure will result in dismissal from the program.
- All students give a full research seminar in the MCD Friday Seminar series (Bio291) during their 3rd year.
- Students advance to candidacy in Spring of their 3rd year, after passing the Oral Qualifying Examination and giving a public seminar on their research work.
- All students must meet with their Thesis Advisory Committee each year, starting in the 2nd year until completion of the thesis.
- A formal thesis defense is required, and must be scheduled so the department is able to attend.
- Students must submit the doctoral thesis to the Thesis Advisory Committee for tentative approval at least 1 month before presenting a defense seminar. All members of the Thesis Advisory Committee should be in attendance at the seminar. Thesis defenses should not be scheduled in the summer or between quarters. The candidate must be prepared to defend the work to the satisfaction of the committee before the thesis is accepted.

15. Before the thesis is accepted and signed by the Thesis Advisory Committee, at least 1 chapter should be submitted as a paper (not an abstract) to a refereed journal for publication. Delays in refereeing, acceptance, and printing may delay actual publication of the paper until after the doctoral degree has been granted.
16. The Thesis Advisory Committee signs the cover page of the student's dissertation only after the research has been presented in a public seminar, defended, and remedied as needed.

## Other MCD Biology Program Policies

Graduate Division forms are available from <http://graddiv.ucsc.edu/>. All forms, applications, etc. in connection with the Graduate Division must be routed through the MCD Biology Graduate Coordinator (Sarah Amador).

### Completion of previous degrees

1. No student may enroll as a graduate student at UCSC until a bachelor's degree has been completed.
2. Newly accepted students who are currently completing another graduate degree normally will not be permitted to enroll in the MCD Biology Graduate Program until the previous degree has been completed (or abandoned).
3. Under special circumstances, the Advising Committee may permit a student to complete a previous degree after entering the Ph.D. Program. Approval must be obtained from the Advising Committee before enrolling for the 1st time, along with a timetable for completion. Failure to follow that timetable may be grounds for dismissal from the Ph.D. Program on the basis of inadequate progress.

### Leaves of absence

1. Students are expected to engage in their graduate student activities continuously (including the summer) from the time of admission until completion of the Ph.D. thesis. Any leave of absence must be authorized in advance.
2. Approval for a leave of absence will be recommended to the Graduate Dean only under unusual or exceptional circumstances. Requests for leave must be submitted in writing to the Advising Committee and must include justifications and the consent of the student's advisor or the Advising Committee, whichever applies to the individual student.
3. Time spent on leave continues to count toward all departmental and university time requirements, including, but not limited to, passing the qualifying exam, the three-year limit after advancement to candidacy, and the six-year limit on normative time for completion of graduate work at UCSC.
4. Making use of an approved leave of absence will not jeopardize maintaining the satisfactory academic progress that must be reported annually to the Graduate Dean.
5. If a leave of absence is granted, it is the responsibility of the student to be familiar with all relevant departmental and university regulations, and to file any necessary paperwork both with the MCD Biology Office and the Graduate Division. Please consult with the MCD Biology Graduate Coordinator (Sarah Amador).
6. International students have additional responsibilities to meet restrictions imposed by their visas, and must also have approval from International Services ([visa@ucsc.edu](mailto:visa@ucsc.edu)).
7. Re-admission to the program after a leave is contingent upon satisfying any conditions set by the department or the Graduate Dean.

### Normal course loads

1. MCD Biology graduate students are expected to work full-time towards their degrees and, therefore, students should enroll for 15 units of credit each quarter.
2. Once formal upper-division and graduate courses recommended by the student's advisory committee have been completed, it is expected that the student will normally enroll in 15 units of Bio297, Thesis Research, each quarter (unless taking a 5 unit graduate elective) plus 2 units of Bio280 if this is offered by the thesis advisor. Advanced students will enroll in Bio299, Thesis Research.
3. Lighter or heavier loads must be approved in advance by the Advising Committee.

### Ph.D. thesis defense

The MCD Graduate Program requires a formal thesis defense before awarding the Ph.D. degree. This requirement must be satisfied before the Thesis Advisory Committee signs the cover page and other forms indicating that the thesis has been accepted. The defense takes place after all members of the committee have approved the written thesis. The defense must be a public seminar, attended by a majority of the candidate's Thesis Advisory Committee, in which the candidate formally

presents the substance of the thesis. After the seminar, the public must have sufficient opportunity to question the candidate. The Thesis Advisory Committee may then meet in private with the candidate for further questions, before determining whether the candidate's thesis is accepted or rejected, or whether any problems need to be resolved. If both the thesis and the defense are acceptable, the cover page and necessary forms will be signed by the committee members, and all departmental requirements pertaining to the Ph.D. thesis defense will have been satisfied.

### **Expected timetable for the Ph.D. degree**

The MCD Biology Ph.D. was conceived as a 5-year program. Under normal circumstances, students should plan to follow this timetable:

1. Enter at the beginning of the Fall quarter.
2. Complete core and background courses in the 1st 2 years.
3. Take qualifying examination and advance to candidacy by Spring quarter of the 3rd year (international students advance before the beginning of the 3rd year).
4. Complete research and finish writing the thesis by the end of the 5th year.

Deviations from this pattern require good justification. Deviations must be approved by the student's Thesis Advisory Committee and by the Advising Committee. Approval is not automatic and should be sought as soon as the need is anticipated.

### **Leaves and qualifying examinations**

1. Students must obtain written permission 1st from their advisor, then from the Advising Committee for all leaves.
2. Students not registered or not on leave for any given quarter must turn in the required paperwork the following quarter (summer excepted) or they will be dismissed from the program.
3. Students who formally withdraw from the program without the successful completion of either a thesis or the qualifying examination must submit formal notification to the Advising Committee.
4. Students must take the qualifying examination before the beginning of Fall quarter of their 3rd year or they will not be allowed to register for courses or serve as a TA or RA. The Graduate Division will be notified, and course enrollment will be denied. Any exceptions to this policy must be made in writing by the student's faculty sponsor (or MCD committee member) prior to the beginning of the Fall quarter.
5. If explicitly invited to do so by the examination committee, students who fail the qualifying examination have one quarter to produce a Master's thesis (on current research) or retake the examination. Such cannot extend past the Fall quarter of the 3rd year in residence without written permission from the Advising Committee.

## **Direct Admission into the MCD Graduate Program**

The direct admit program is designed to allow direct admission of qualified students into faculty labs. Most students admitted to the graduate program do research rotations and then select a thesis lab. Students who have already initiated a research project in a particular lab may apply to join that lab directly. In addition, qualified international students who cannot be supported by the rotation program can be admitted by investigators with sufficient financial resources. All decisions regarding direct admits are made by the Graduate Admissions Committee; individual faculty may not make offers of admission to applicants without first consulting with the Admissions Committee.

Faculty sponsors will be allowed to accept Ph.D. students directly into their labs if MCD Admissions and Advising Committees are satisfied that the candidate's file has sufficient academic merit for admission. All direct admits must apply via the usual application procedures, and must fulfill all Ph.D. requirements except research rotations (i.e. core courses, 2 elective courses, and 2 quarters of teaching assistantships).

The faculty sponsor (not the department) will be responsible for full support of the direct admit student. In the event a direct admit student needs to find a different lab, the student will be responsible for finding a new faculty sponsor in order to remain in the program. The new faculty sponsor will assume responsibility for funding the student.

## Master's (M.A.) Program in MCD Biology

This policy statement supersedes any previous pathways to the degree in MCD Biology. The purpose of the Master's Program in MCD Biology is to allow UCSC students to extend and complete a senior thesis project for additional credit or to allow a student the option of committing to a short program in an area where they may not wish to or need to pursue a Ph.D. An M.A. degree will be awarded.

### Application procedure

All applicants shall apply through the Graduate Division via the standard application for graduate studies in MCD Biology. The application must be accompanied by transcripts, GRE scores, and letters of recommendation. All students admitted to the Master's Program should be of an academic standard comparable to that for incoming Ph.D. students as judged by a combination of the above factors. It has not been, nor is it intended to be, a "2nd class" graduate program. Acceptance into the program requires a faculty sponsor from MCD Biology. There is no formal commitment of financial support from the Department of MCD Biology, nor is the faculty sponsor required to provide financial support. Students in the Master's Program are normally eligible for teaching assistantships and GSRships. Serving as a TA, although not required, is considered a normal part of the Master's Program. If the faculty sponsor appoints a student as a GSR during the academic year, it should be at the same level of support as for a Ph.D. student. Faculty may provide partial support during the summer months.

### The Master's Program

The program lasts for 2 years. A 3rd year may be requested but requires approval by the Advising Committee. The Thesis Advisory Committee shall comprise the advisor and at least 2 other members of the MCD Biology graduate program. The Thesis Advisory Committee should meet at least once a year and prior to the submission of the written thesis. Students should take Bio200A in the 1st year. Enrollment and attendance in MCD Seminars (Bio291 and Bio292) are required each quarter. Students must also complete the Practice of Science course (Bio289), typically in their 2nd year, and 2 advanced graduate electives. Advanced graduate electives may include Bio200B, Bio200C, Bio200D, or any of the courses listed above as advanced courses for the Ph.D. Master's students do not do research rotations, but instead continue to work in their undergraduate research laboratory or in the laboratory of the sponsoring faculty member.

For graduation, the student must:

1. Pass all course work assigned.
2. Submit a written thesis describing their work. The research should be of sufficient quality to merit publication, but a peer-reviewed publication is not required for graduation. The thesis shall include an introduction and discussion, in addition to chapters describing results. Students can include data from jointly authored papers in the results chapters provided that their contributions are substantial and clearly spelled out. The thesis must be completely written by the student.
3. Give an oral thesis defense after timely submission of the thesis to the Thesis Advisory Committee. The committee will approve the thesis when all requirements and requested changes have been met.

### Master's students wishing to pursue the Ph.D. track

Master's students who wish to transfer to the Ph.D. track should first get approval from their faculty advisor, then submit a request to the Advising Committee to transfer from the Master's track to the Ph.D. track. Students are typically asked to provide an additional letter of recommendation (from their faculty advisor). The Advising Committee will confer with the Admissions Committee and may confer with instructors of the core courses already taken by the student. If the transfer is approved, students must complete the requirements for the Ph.D., including taking all graduate core courses and 2 advanced graduate electives, taking an oral exam, and giving a research seminar to advance to candidacy.

### Checklist for Graduation

1. Complete and file an application for degree form for the quarter of graduation:  
[http://graddiv.ucsc.edu/student\\_affairs/forms.php](http://graddiv.ucsc.edu/student_affairs/forms.php)
2. Schedule a dissertation seminar with the MCD Biology Graduate Coordinator (Sarah Amador).
3. At least 3 months before graduation, meet with the Thesis Advisory Committee to determine thesis content and format.
4. At least 1 month before the thesis defense, give all Thesis Advisory Committee members a copy of the thesis for review.
5. Two weeks before the thesis defense, meet with the Thesis Advisory Committee again for final feedback.

## **Appendix: UCSC APPEALING ACADEMIC JUDGMENTS**

Revisions approved by Graduate Council on April 24, 2008 and effective July 1, 2008

Students have the right to appeal various institutional judgments concerning their academic standing at UC Santa Cruz including dismissal from graduate standing, placement on probationary status, narrative evaluation or grade notation, and their academic progress. This appeal procedure applies only to current graduate students at UC Santa Cruz and is not available to appeal denial of admission or readmission to any program.

The scope of this procedure is limited to the matters listed above, and excludes complaints regarding student employment as a Teaching Assistant, student discipline, auxiliary student services (such as housing, child care, etc.), and sexual harassment, which are covered by other policies and procedures.

This document outlines the four levels of complaint resolution available to graduate students at UC Santa Cruz:

1. Instructor appeal
2. Departmental appeal
3. Graduate Dean appeal
4. Graduate Council appeal

Throughout all stages of the appeal process, both parties are strongly encouraged to seek informal resolution. The Dean of the Division of Graduate Studies may be consulted for informal resolution at any stage of the process. In addition graduate students may contact the Office of the Ombudsman for assistance with informal complaint resolution. Working toward informal resolution does not preclude continuation of a formal appeal. However, unless a request for extension of a deadline is granted as provided below, informal resolution efforts shall not serve in any way to stay or extend an applicable filing deadline.

### **Requests for Extension of Filing Deadlines**

Except as otherwise provided in this policy, any party may for good cause seek an extension of a deadline by filing a request with the Dean of the Division of Graduate Studies. Such request must be submitted in writing prior to the deadline for which an extension is sought, and must explain the reason(s) why an extension is necessary. The decision to grant or deny a request is within the discretion of the Dean and shall be final and binding.

### **Basis for Appeals**

An appeal may be filed based upon one or more of the following grounds, provided that the action complained of has had a material impact on the student's academic standing:

1. Procedural error or violation of official policy by academic or administrative personnel;
2. Judgments improperly based upon non-academic criteria including, but not limited to, discrimination or harassment on the basis of race, color, national origin, religion, sex, disability, age, medical condition, ancestry, marital status, citizenship, sexual orientation, or status as a veteran or special disabled veteran, or any personal or arbitrary reasons;
3. Special mitigating circumstances beyond the student's control not properly taken into account in a decision affecting the student's academic progress;
4. Capricious or arbitrary application of appropriate criteria in a manner not reflective of the student's performance in relation to a course or program requirement.

### **Procedure for Appeals**

Throughout the appeals process all time periods refer to working days<sup>1</sup> within the academic term or during the normal working days of summer. Students should be aware that appeals begun late in spring or in summer may be delayed by the unavailability of specific faculty and/or the Graduate Council.

A written appeal must be initiated within thirty (30) working days of the action being appealed. The student must seek resolution of the action sequentially as described below, unless the action complained of is not an evaluation or grade notation. In that instance, the student would begin the appeal with Step II below.

Step I. If the student is appealing an evaluation or grade notation, the appeal must be submitted to the instructor who provided the evaluation or grade notation.

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<sup>1</sup> The term "working days" means Monday through Friday, excluding University holidays.

- Step II. For all other appeals, or if the student is continuing the appeal of an evaluation or grade notation, the appeal must be submitted to the student's major department;
- Step III. The Dean of Graduate Studies;
- Step IV. The Graduate Council.

In all cases (Step I through IV), the appeal should indicate the action(s) being appealed, the date(s) the action(s) occurred, the grounds upon which the appeal is based, and the outcome desired.

### **Step I. Instructor Appeal**

If a student is appealing a narrative evaluation or grade notation, the student must submit a written appeal to the instructor of the course within thirty (30) working days of the deadline contained in the campus Academic and Administrative Calendar for submittal of narrative evaluations or grade notation or, if that deadline has passed, of the actual date when the faculty member filed the narrative evaluation or grade notation. The faculty member's Department Chair should be copied on the appeal, in order to inform the student if the faculty member is unavailable.

The faculty member may elect to meet with the student to discuss the appeal and determine if a reasonable compromise can be reached that is acceptable to both parties. The faculty member must submit a written response to the student with a copy to the student's Department Chair within thirty (30) working days of receipt of the Step I appeal.

This deadline may be extended by the Department Chair or his/her designate should the faculty member be away from campus for research, administrative duties, sabbatical time, or personal leave.

If the course in question was sponsored by a unit other than the student's home department, the appeal should be addressed to the instructor of the course and copied to the two Chairs jointly.

### **Step II. Department Appeal**

The student may continue the appeal of an evaluation or grade notation with the Department. In addition, a student may begin the appeal of any other action at this level. Students continuing the appeal of an evaluation or grade notation must submit a written appeal to the Department Chair of the faculty instructor of the course. If the course in question was sponsored by a unit other than the student's home department, the student's home Department Chair should be copied.

Review of the appeal at the departmental level should be conducted by the departmental graduate affairs committee or analogous group. This group should minimally include two or more faculty members. If a faculty member's action(s) is the subject of the appeal, s/he must recuse him or herself from the committee. Departments may also elect to establish an ad hoc committee to handle appeals filed in a given academic year. The committee will initiate a review process within ten (10) working days of receipt of the appeal.

The committee will receive the written appeal from the student, all pertinent material from the faculty member and student, and any additional material considered germane to the appeal either by the student or the faculty member. The committee may request additional information, as it deems necessary. The committee or its designated members may elect to interview the faculty member and/or student involved in the appeal.

The committee will render its decision in written form within seven (7) working days of the conclusion of the review process.

If the action being appealed, such as probation or dismissal, was initiated by the department, the review process remains the same.

### **Step III. Dean of Graduate Studies**

The student may elect to submit a written appeal of the department's decision to the Graduate Dean. The decision must be appealed within thirty (30) working days from the date the departmental decision was transmitted to the student.

At the discretion of the Graduate Dean, the appeal may be assigned to the Associate Graduate Dean. Additionally if the Dean determines that the appeal should be submitted directly to the Graduate Council (for example, if the Dean determines that a fair and impartial hearing may be jeopardized by conflicts within the Graduate Division or other extenuating circumstances), the Dean may refer the appeal directly to the Graduate Council.

The Graduate Dean will review all documents and records submitted in the departmental review. In addition the Graduate Dean may meet with the student, faculty member(s), and/or graduate affairs committee, where appropriate, and may consider additional materials as s/he deems appropriate. In most cases the Graduate Dean will seek resolution within one academic term.

The Graduate Dean may suggest a resolution of the appeal in written form within seven (7) working days of completion of his/her review. After fourteen (14) working days, the suggested resolution, if not accepted, becomes null and void.

#### **Step IV. Graduate Council**

The student may submit a final appeal to the Graduate Council. The Graduate Council is a committee of the Academic Senate. There are ten Santa Cruz faculty members, plus the Dean of Graduate Studies serving ex officio. In addition, there are one Library representative nominated by the UCSC Librarians Association, no more than three Graduate Student Association representatives, and one Postdoctoral Scholars Association Representative.

The student will submit a written appeal to the Graduate Council through the Academic Senate Office. The Dean of Graduate Studies will forward all pertinent documents to the Graduate Council for evaluation. The Chair may request additional information, as s/he deems necessary.

The Graduate Council Chair in consultation with the Graduate Council will review the file and determine whether sufficient cause exists to justify a formal hearing. If the Council declines to hear the case, the Council will issue a written statement to that effect. This would be the final conclusion of the appeals process.

If the Council determines that a hearing is to be held, the student and instructor or department Chair will be notified in writing at least thirty (30) calendar days in advance of the hearing date. The Graduate Council Chair may at his/her discretion constitute a subcommittee of at least four members, including at least one student representative, to hear the appeal, or s/he may convene the Graduate Council as a whole, as appropriate to the case and circumstances. At least seven (7) calendar days prior to the hearing date, each party shall provide the other with all relevant materials, including: names of all witnesses and any and all written materials to be introduced at the hearing. Copies of this material must also be submitted to the Graduate Council at least fourteen (14) calendar days prior to the hearing.

During the appeal, the Graduate Council shall review the charges. At the hearing, the Graduate Council may interview such witnesses as are brought to the hearing by either party or such other witnesses as the hearing committee considers relevant.

During the procedure, the graduate student members of the Graduate Council participate fully and equally with faculty members of the Graduate Council to review the issues of the case and ensure due process for the student. The graduate students are not to be viewed as a special resource or advocate for the student to any greater degree than any individual faculty member of the Graduate Council.

A formal hearing will follow these procedures and conditions:

1. The student:

- a. shall be present throughout the hearing. If the student fails to attend the hearing, s/he shall be considered to have abandoned her/his appeal unless deferral was granted by the Graduate Council;
- b. may be accompanied by a Senate member of her/his choice, if desired and available;
- c. may be accompanied by a graduate student of her/his choice to serve in an advisory role, if desired and available;

Please note: although Graduate Council will attempt to accommodate requests, the non-availability of a requested accompanying Senate member or graduate student is not sufficient cause for delay of an appeals hearing, nor does it affect the legitimacy of the Council's findings.

- d. shall have the right to present evidence, including witnesses, 1st; and
- e. may cross-examine all witnesses presented by the instructor, department or dean.

If the student desires a Senate member as an advisor and is unable to secure a Senate member to serve in this role, the Graduate Council, at the student's request, will appoint a faculty member to act in this role. This advisor may or may not be a member of the Graduate Council. A Graduate Council member serving in this capacity shall be recused from the Graduate Council deliberations of the appeal.

2. The hearings will be confidential and limited to the principals (student, Senate member selected by the student, graduate student selected by the student, and instructor or department representative or relevant administrator), and members of the Graduate Council (but see 3 and 5 below).
3. By prior arrangement, witnesses may be interviewed as part of the hearing process.
4. All witnesses other than the student and the instructor (or department representative or other relevant administrator) shall be excluded from the hearing except when testifying.
5. Evidence may be oral or written, but must be limited to issues raised in the original written complaint. Formal rules of evidence shall not apply, and evidence shall be admitted if of the type upon which reasonable people are accustomed to rely in the conduct of serious affairs. The Graduate Council may, in its discretion, exclude irrelevant or unduly repetitive evidence. At its discretion the Graduate Council may agree to hear closing arguments (either oral or written at the Council's discretion) as to the correct resolution of the matter. If the Council determines to allow written closing arguments, the hearing process shall be deemed complete upon the parties' submission of their written arguments to the Council.
6. The meeting shall be tape recorded, or, at the option of the student, a stenographer may be provided at the student's expense. The student shall have access to a copy of the tape recording and may copy the tape at her/his expense. All records pertaining to the hearing shall be kept by the Graduate Council for a period of three years. Student records shall be retained beyond that time if there is an outstanding request by a principal party to the review to inspect them.
7. The Graduate Council will reach its decision subsequent to completion of the hearing. The deliberations of the Graduate Council shall be in private. The Graduate Council shall submit a written decision to the Graduate Dean, including an explanation of the basis of its decision and a written recommendation, within ten (10) working days of the date of completion of the hearing process.
8. Consistent with Senate authority, the Graduate Dean will make the final decision on all cases involving probation and dismissal. The Graduate Council will have final decision-making authority in all other cases.
9. The Graduate Dean will have the administrative responsibility to implement the elements of the final decision and to ensure that the instructor involved and/or Department abide by the terms of the final resolution of the appeal. In addition the Graduate Dean will take reasonable steps to ensure that the student is not subject to any form of retaliation and is further restored to good standing with the Department if so determined by the decision of the review. This may include the provision of lost wages or fellowship funds if so determined by the decision of the review.

## **V. Financial Support**

Financial support will continue for the student for the term in which the appeal is submitted. Support beyond this term will be contingent upon approval of the Department and the Graduate Dean, and determined on a case-by-case basis.

## **VI. Ramifications of Appeal Process**

A faculty member may request his or her name be removed from the course in the final academic transcript.

No punitive actions may be taken against the instructor on the basis of these procedures. Neither the filing of an appeal by a student nor the final disposition of the appeal shall, under any circumstances, become a part of the personnel file of the instructor. The use of non-academic criteria in assigning a grade is a violation of the Faculty Code of Conduct. Sanctions against an instructor for violation of the Faculty Code may be sought by filing a complaint in accordance with CAPP 002.015 or the relevant collective bargaining agreement. A complaint may be filed by the student or by others consistent with CAPP 002.015.

No punitive action may be taken against the complainant on the basis of these procedures. Neither the filing of an appeal by a student nor the final disposition of the appeal shall, under any circumstances, become a part of the complainant's file. The instructor may, if he or she feels that his or her record has been impugned by false and malicious allegations, file charges against the complainant through the office of the Vice Chancellor for Student Affairs.