Fall 2014

Dear Chemistry graduate students:

**WELCOME TO UCSC!**

This handbook is your guide to our graduate program in the Department of Chemistry & Biochemistry. As a new student, you can find answers to many of the questions that arise when planning a graduate career and beginning at a new university. Also, you may want to check our department’s web pages at [http://chemistry.ucsc.edu](http://chemistry.ucsc.edu), where you will be able to access additional information about the department. For more information about the University of California, Santa Cruz, visit the web site [http://www.ucsc.edu](http://www.ucsc.edu).

If you have any questions or need assistance during your time here at UCSC, please contact Janet A. Jones, Graduate Program Coordinator at (831) 459-2023 or jajones@ucsc.edu. You can find Janet in 230B Physical Sciences Building.

In addition, the Chemistry & Biochemistry Department staff is available to assist you with all questions pertaining to the university. The department office can help you locate university forms and provide general information about university procedures, or we can refer you to the appropriate office. The department office is located in room 230 Physical Sciences Building. Our phone number is (831) 459-4002.

For graduate advising questions or any other matter or concern, please contact me at (831) 459-1952 or by email yatli@ucsc.edu. My office is 160 Physical Sciences Building--stop by any time.

Wishing you success with your studies,

Yat Li, Associate Professor
Director, Graduate Program
Chair, Graduate Affairs Committee
Department of Chemistry & Biochemistry
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GRADUATE PROGRAM

Two degree programs, Ph.D. and M.S., are available to applicants with an undergraduate chemistry degree (or Bachelor’s degree in a related subject with equivalent coursework and training in chemistry). The Graduate Division admits candidates on the recommendation of the Department of Chemistry & Biochemistry. Admission to the Ph.D. program does not require a M.S. degree.

THE PH.D. DEGREE IN CHEMISTRY

First Year

Attainment Exams

A solid foundation in undergraduate chemistry is essential to a student’s progress in graduate studies and research. For this reason, all graduate degree candidates are required to take entrance (attainment) exams to confirm their preparation in the fields of biochemistry, inorganic, organic and physical chemistry. Students who have no previous coursework in any one of these areas must take the corresponding upper-division course for an “A” or “B” letter grade and will not be allowed to take the exam. Students who have previous coursework in any of the areas must take the exam. These exams are given a few days before the start of Fall quarter classes; they are standardized American Chemical Society (ACS) exams and are written at an upper-division undergraduate level similar to that of well-known texts in the areas. Students who have taken these ACS exams at another university can skip the attainment exam at UCSC if they arrange to have their previous passing score sent to the Graduate Director before the examination for verification and approval. *Previous exam scores will only be accepted if the exams were not taken to meet a requirement for the Bachelor’s degree or as part of a course required for the Bachelor’s degree.*

Students must take each exam in areas of previous coursework, but need only meet the attainment requirement in three of the four sub-disciplines.

The Graduate Affairs Committee will review each student’s attainment scores at individual advising meetings during orientation week. Exam results are taken into consideration by the Graduate Director to assess the student’s background and to help work out a course of study for the first year. Students have three chances to pass the exam in a given area; exams are given at the beginning of Fall, Winter and Spring quarters.

Course Requirements

Successful completion of formal lecture courses is an integral part of any Ph.D. student’s education in Chemistry & Biochemistry. Chemistry courses in the 200 series expose the student to chemical knowledge and methodology at the frontiers of contemporary research. Other courses can be chosen to add breadth, such as 100- or 200-series courses outside the student’s area of specialization or, with permission, in another department.

The Department has established core course requirements that pertain to all students except for those transferring into our program with advanced standing (i.e. who have a M.S. degree from another institution). The course requirement is 15 units of core courses and 10 units of electives. Electives may be either at the graduate level or at the advanced undergraduate level (100 series). Fifteen of the 25 units (three five-unit courses) must be Chemistry & Biochemistry courses. The remaining 10 units may be in Chemistry & Biochemistry or in a related discipline such as MCD Biology, Microbiology & Environmental Toxicology, Physics, Math, Biomolecular Engineering, Electrical Engineering, etc. Eligible electives do not include Chemistry 163ABC, 112ABC, 143 or 151A, but can include 151B. Undergraduate courses taken to satisfy attainment exam deficiencies cannot be counted. The lecture course requirement must
be met before advancing to candidacy. Students may take more than the required five courses at any time depending on their interests or research.

Students who enter with previous graduate work must discuss with the Graduate Advisor which prior courses might be used to satisfy the UCSC requirements. Course content must be documented in sufficient detail (course descriptions, syllabi, papers, exams) to determine whether it is equivalent to departmental course offerings. **This documentation must be provided before instruction begins in the first quarter of residency.** Previous coursework will be considered only if the courses were not taken as part of the requirements for a Bachelor’s degree. If you already took one of the core courses for your B.S. degree, you have met the content requirement but must still take another elective to meet the units requirement.

The Ph.D. student’s program of study, which includes not only lecture courses but seminars, pro-seminars (i.e. lab group meetings), independent studies (research), needs to be carefully discussed and planned with the Graduate Director (in the first year) or with the student’s Research Advisor (second year and beyond). **By departmental policy, the standard course load is 15 credits per quarter while the student is enrolled full time in the program.** These courses must all be taken for credit. Enrichment courses from outside chemistry and related disciplines do not count.

Graduate students are expected to acquire an in-depth understanding of their area of specialization through a core curriculum that prepares them for advanced study and research. The core and required background courses should be completed by the end of the second year.

**I. Biochemistry/Biophysical Chemistry**

Required Background Courses: BMB 100ABC

Core Graduate Courses

Chem 200A Advanced Biochemistry: Biophysical Methods
Chem 200B Advanced Biochemistry: Protein Structure and Function
Chem 200C Advanced Biochemistry: Nucleic Acids

Electives:

Chem 231 Enzyme Mechanisms & Kinetics
Chem 234 Bioinorganic Chemistry
Chem 238 Topics in Biophysical Chemistry
Chem 261 Foundations of Spectroscopy
Chem 262 Statistical Mechanics
Chem 263 Quantum Mechanics
Chem 265 Computer Simulation in Statistical Mechanics
Chem 273 Applications of Symmetry and Quantum Mechanics

**II. Inorganic and Bioinorganic Chemistry**

Required Background Courses: Chem 151A Chemistry of Metals

Core Graduate Courses:

Chem 151B Chemistry of Main Group Elements
Chem 234 Bioinorganic Chemistry
Chem 256ABCD Advanced Topics in Inorganic Chemistry
or
Chem 268 Solid State and Materials Chemistry

Electives:

Chem 273 Applications of Symmetry and Quantum Mechanics
Chem 200A Advanced Biochemistry: Biophysical Methods
### III. Organic Chemistry

**Required Background Courses:**
- Chem 108AB
- or Chem 112AB
- Chem 143

**Core Graduate Courses:**
- Chem 242A: Modern Physical Organic Chemistry
- Chem 242B: Modern Synthetic Methods in Organic Chemistry
- Chem 242C: Spectroscopy and Applied Analytical Methods

**Electives:**
- Chem 200A: Advanced Biochemistry: Biophysical Methods
- Chem 200B: Advanced Biochemistry: Protein Structure and Function
- Chem 246A-G: Advanced Topics in Organic Chemistry
- Chem 255: Biotechnology & Drug Development
- Chem 256A: Advanced Topics in Inorganic Chemistry
- Chem 269: Electrochemistry

### IV. Physical Chemistry/Chemical Physics

**Required Background Courses:**
- Physics 114AB

**Core Graduate Courses:**
- Chem 262: Statistical Mechanics
- Chem 263: Quantum Mechanics

**Electives:**
- Chem 200A: Advanced Biochemistry: Biophysical Methods
- Chem 261: Foundations of Spectroscopy
- Chem 265: Computer Simulation in Statistical Mechanics
- Chem 266: Advanced Topics in Physical Chemistry
- Chem 268: Solid State and Materials Chemistry
- Chem 269: Electrochemistry
- Chem 273: Applications of Symmetry and Quantum Mechanics
- Physics 110AB: Electricity, Magnetism, and Optics
- Physics 155: Solid State Physics
During the first year, students are advised to take one or two courses plus Chem 291 each quarter. The 291 research seminar must be taken each quarter until you advance to candidacy. If possible, students are encouraged to finish their coursework in the first year so as to focus on research as soon as possible. Core courses and electives should be completed within two years. Once the lecture course requirement has been met, students may take 5, 10 or 15 units of research (Chem 299ABC) to meet the 15-unit quarterly enrollment requirement.

Course Selection and Enrollment

Advising Appointment
First-year students enroll in the required first-year seminars (Chem 292, 296, and 291) and select the rest of their first-year courses at an advisory meeting with the Graduate Director.

The Schedule of Classes and the UCSC General Catalog can be consulted on the web at http://reg.ucsc.edu/soc.html and http://reg.ucsc.edu/catalog/html/index.html. These publications are no longer issued in hard copy. The UCSC General Catalog and the Schedule of Classes list course prerequisites, restrictions and enrollment limitations.

Enrolling in Courses
You enroll in classes online through your student portal, my.ucsc.edu by entering your student ID and password. In this way you establish the official record of all courses for which you are accountable in the current quarter. You are responsible for verifying your enrollment on the web site by the published deadline for each quarter (see the Academic and Administrative Calendar at http://reg.ucsc.edu/calendar/index.html). No credit can be earned for courses in which you do not officially enroll. Your registration may be cancelled or fee credits put on hold if you fail to enroll in classes by the published deadline. If you are a teaching assistant (TA) or a graduate student researcher (GSR) and fail to enroll in classes, your employment with the University will be terminated. For enrollment help, email registrar@ucsc.edu or call (831) 459-4412.

IMPORTANT: A $50 late enrollment fee is assessed if you have not enrolled by the seventh day of instruction in any quarter. Refer to the quarterly Schedule of Classes or the annual Academic and Administrative Calendar for dates (http://registrar.ucsc.edu).

ALSO IMPORTANT: If you have not enrolled in at least 5 units by the first day of the quarter, a hold will be put on your financial aid (TA or GSR fee credits, fellowships, loans, etc.).

Grading Options: Letter Grades vs. Satisfactory/Unsatisfactory (S/U)
You can request either a letter grade or a satisfactory/unsatisfactory grade (S/U) for the courses you take as a graduate student. A Satisfactory, or passing, grade for a graduate student means an A or B letter grade. Letter grades may only be requested for lecture courses. Chemistry 291, 292, 296, 299 or group meeting pro-seminars (274-290) should be taken for a Satisfactory/Unsatisfactory grade (S/U) only. If you plan to apply for NSF or other external fellowships, you are encouraged to enroll in all lecture courses for a letter grade.

Chem 291 Research Seminar (5 units)
For Chem 291 seminars (Monday afternoons) the Department of Chemistry & Biochemistry invites well-known researchers from outside UCSC to share and discuss their current research. All students are required to enroll in Chem 291 until they have advanced to candidacy. Students are welcome to continue to attend these presentations after advancing to candidacy, and many do. Faculty members frequently attend the seminars as well.

Chem 292 Faculty Research Seminar (2 units)
In lieu of formal rotations, all new graduate students are required to take Chem 292 in fall quarter of their first year. This course introduces new students to each faculty member’s research interests. In addition to attending weekly seminars where faculty members discuss their
work, students are expected to investigate the research areas of at least three faculty members in some depth, to help decide which lab is suitable for them. A faculty member may request that an interested student read the pertinent literature, attend group meetings, and/or write a report.

**Chem 296 Teaching Chemistry (2 units)**

All new graduate students are required to take Chemistry 296. This class introduces new graduate students to their responsibilities as Teaching Assistants, and equips TAs with effective contemporary pedagogical techniques and strategies. Chem 296 meets weekly throughout fall quarter and is most useful when taken concurrently with the first TA appointment. The class format includes discussions, guest speakers, and student presentations. The duties of Teaching Assistants are taken very seriously at UCSC and we make a conscious effort to help our graduate students make the transition from undergraduate student to graduate Teaching Assistant. Students must pass this course to be appointed as TA in future quarters.

**Other First- and Second-Year Requirements**

**Organic Cumulative Exams**

Ph.D.-track organic students are required to pass four cumulative exams by the end of the second year (sixth quarter). Students must take each of the regularly scheduled cumulative exams beginning in the fall quarter of their first year until they have passed four exams. Cumulative exams broaden the student’s exposure to currently active areas of organic chemistry. Failure to complete this requirement will result in removal from the Ph.D. program. The exams are given twice a quarter and consist of problems drawn from topics recently discussed in seminars or published in recent editions of major chemical journals. Questions are drawn from a list of current papers or general topics distributed two weeks before the exam. The questions may directly relate to the topics or papers or to some background material cited in the papers. Exam performance will be taken into account at the time of the oral examination. Students should treat these examinations with the same seriousness as course work and thesis research.

**Choosing a Research Advisor and Joining a Lab**

Graduate students must choose their Research Advisor and join a lab in Spring quarter (by May 1) of the first year. Ph.D. students choose two additional faculty members to complete their Research Committee (see below). All students without exception conduct lab research during the summer.

**Forming a Research Committee**

The first academic year of graduate study ends with the formation of a three-person Research Committee that includes the Research Advisor, committee chair and a third member. Students discuss the composition of the committee with the Research Advisor and with the Graduate Director, who must both approve the nominations. The committee meets with the student annually to review the student’s progress and to advise on thesis research by providing outside viewpoints. The committee members decide when sufficient work has been completed for submission of a thesis, when progress is not satisfactory, and when it is necessary to recommend disciplinary action. The Research Committee serves as the evaluating committee for the Second-Year Seminar and the Oral Qualifying Examination (with the addition of a fourth member from outside the department), and also as the Dissertation Reading Committee. The makeup of this Research Committee is the joint responsibility of the student and the Research Advisor. The Research Committee chair must be a tenured Chemistry & Biochemistry faculty member other than the Research Advisor; s/he will also chair the Oral Qualifying Examination.

In addition to the above formal examinations, the Research Committee meets in Fall quarter of the student’s fourth, fifth and, if necessary, sixth year to discuss research progress. For the review procedures, see “Fourth- Fifth- and Sixth-Year Requirements, pp. 15-16.”
Students are expected to finish all requirements for the Ph.D. in five years, or nine quarters after advancing to candidacy.

**Academic Progress Reviews**

The departmental Graduate Affairs Committee, chaired by the Graduate Program Director, reviews each student’s academic progress annually. In Jul-Aug all students receive a letter summarizing their progress, rated Satisfactory or Unsatisfactory, and noting the following year’s requirements. For first-year students in particular, the Graduate Affairs Committee monitors academic performance at the end of each quarter.

When a student has met all of the first-year requirements (attainment exams, most of the coursework and cumulative exams if applicable) and no problems have developed, the student will be encouraged to proceed with Ph.D. research.

When a student’s work is of unsatisfactory quality, the department will recommend to the Graduate Division that the student be placed on probation with one or more conditions that must be met by a specific date. In order to be removed from probation the student must satisfy the condition(s) by the specified deadline. If the conditions are not met as prescribed, the student may be dismissed from the Ph.D. program. A student can be placed on probation for:

1. Not passing two lecture courses (letter grade of C, D, F or Unsatisfactory).
2. Not passing the Second-Year Seminar.
3. Not passing two or more attainment exams by the end of the first year; that is, all parts of the attainment requirement must be attempted by the end of Spring quarter of the first year either exam or course, as advised). Three of the four area requirements must be successfully met.
4. Other situations indicating lack of adequate progress as determined by the Graduate Affairs Committee.
5. Any of the above plus inadequate TA performance.

(See Academic Standing, Probation, Dismissal, p. 16.)

**Second Year**

During the second year students are expected to complete coursework, organic cumulative exams, if applicable, and engage more fully in research. Enrollment in a Chem 291 seminar continues until advancement to candidacy in the third year. By the end of the second year, if a student fails to complete the coursework requirement, has not passed the second-year seminar or the cumulative exams, or has not progressed sufficiently in research to present a passing oral exam, the student will be moved to the M.S. program.

**Literature Seminar (Second-Year Seminar)**

The Department of Chemistry & Biochemistry requires that all Ph.D. students give a literature seminar in their fourth, fifth or sixth quarter. Earlier scheduling requires the approval of the Graduate Director. The ability to read and critically analyze research data, to organize the data into a coherent presentation, and to communicate the information in a clear, logical and engaging manner are important skills for the chemistry professional. The second year seminar provides an opportunity to develop and utilize these skills while discussing an area of recent research activity distinct from the student’s own thesis project.

The seminar topic should be of current interest to the chemical research community, and also an area in which you have not previously had experience--either through current or prior laboratory activity or library research. The seminar should cover more than one research paper—in fact, you will read many background papers to support and clarify the actual work presented. Your goals should be to teach the audience something they didn’t know and to relate it to information they do know, taking into consideration the different levels of understanding of your audience. The **chair of your Research Committee must approve** the proposed topic.
before you begin internet/library research. The chair writes an evaluation with input from all committee members and other faculty members attending the seminar.

Second-Year Seminars take place on Wednesday afternoons at 3:30-4:40pm in 240 PSB. Discuss possible topics with your advisor early in fall quarter of the second year. All three members of your Research Committee must agree on a date before you ask to reserve a time on the seminar schedule. Also, before reserving a time, you should turn in the Seminar Planning Form completed by you except for the last section (seminar length) and signed by your chair.

A successful second-year seminar should reflect a thorough understanding of the chemistry underlying the topic. The student should be ready to answer questions concerning all aspects of the research. Faculty comments, which are used to develop the evaluation for the seminar, tend to focus on the level of intellectual content, organization, delivery, quality of the abstract, your ability to answer questions, etc. The choice of media aids (chalk talk, transparencies, Power Point presentation) should be discussed with the advisor or committee chair.

One aspect of the second-year literature seminar that is not typical of a professional presentation is the abstract. This is perhaps the most important part of your presentation for the audience. Long after the talk is forgotten, the abstract provides ready access to the information. Special care must be taken to make this a polished document. Your abstract should be constructed like a research paper, with a logical progression of ideas and citing of sources. The abstract should be three pages plus properly formatted references.

In summary, your talk should show that:

- you are able to select an exciting and appropriate contemporary topic.
- you can read the relevant literature and organize and deliver a logical and interesting presentation.
- you have prepared yourself with regard to both the topic and basic science pertinent to your presentation in a way that will allow you to respond thoughtfully to questions from the audience.

For all sub-disciplines the Research Committee chair writes the evaluation with input from the other committee members and faculty members present. All of the presenter’s research committee members are required to attend. Students should check their committee’s availability before they decide which quarter to present.

**Organic and Inorganic Seminars**

Presentations last 50 minutes, plus 10 minutes for questions and discussion and take place in 240 PSB on Wednesdays from 3:30-4:30 pm, except for the last two Wednesdays of each quarter.

**Biochemistry and Physical Seminars**

Presentations last 25 minutes, plus 5 minutes for questions and discussion. Two talks will be grouped together on each Wednesday of the last two weeks of instruction of each academic quarter.

**Third Year: the Ph.D. Oral Qualifying Examination**

**Timing and purpose**

The Oral Qualifying Exam takes place in the student’s seventh quarter*. To be eligible for this exam a student must have passed attainment exams, presented the second-year seminar, completed required coursework, resolved any ‘Incomplete’ grades, met the cumulative exam requirement (organic students), satisfied the teaching requirement, and begun their own research.
The qualifying examination serves three purposes. First, it gives the student an opportunity to demonstrate the knowledge and thinking behind the thesis project and to examine research progress to date. Second, it examines the student’s written and oral defense of an original research proposal. Finally, it tests the student’s grasp of fundamental chemical concepts through in-depth questioning on both topics.

*Summer does not count as a quarter. A student wishing to take the Oral Q.E. early must have met all other preliminary requirements (Attainment Exams, coursework, Second-Year Seminar, Cumulative Exams (organic students), three quarters TAing) and in addition must obtain the written approval of their advisor and the Graduate Director.

**Procedure**

Submit a Committee Nomination for Ph.D. Qualifying Examination form to the department office at least **35 days prior to the exam date** (download from the Graduate Division’s web site [http://graddiv.ucsc.edu/student_affairs/forms.php](http://graddiv.ucsc.edu/student_affairs/forms.php)). Include the date and time your Orals Committee has agreed upon. A room will be reserved for your exam.

The Orals Committee shall consist of the student’s Research Committee and a fourth or ‘outside’ member. The latter must be either a tenured member in another department at Santa Cruz, a tenured Chemistry faculty member from another UC campus, or a chemist from another university or laboratory with a research record comparable to that of a tenured UC faculty member. The nomination of the fourth member is subject to approval by the Chemistry Graduate Director and by the Graduate Dean. Qualifications of a non-UCSC committee member must be documented by a *Curriculum Vitae* including publications; the student justifies the selection in a short paragraph submitted with the nomination form. The chair of the committee must be a tenured UCSC Chemistry faculty member who is not the Research Advisor.

The candidate distributes a one- or two-page abstract of the research proposal to the examination committee at least **30 days before the examination. This step may not be omitted.** The complete text of the research proposal must be distributed at least one week before the exam.

A score (honors, pass or fail) will be determined after the examination based on the written and oral proposal defense and on the student’s knowledge of the research project and general chemical concepts. All three areas must receive passing marks from all members of the examining committee for a successful outcome. The proposal must be well organized and clearly written, with special attention to editing and figures. The student should consult with the Research Committee Chair in choosing presentation media (overhead projected transparencies, “chalk talk,” Power Point presentation). The examining committee will look for evidence of a fundamental knowledge of chemical concepts at least at the level of the department’s advanced undergraduate courses. A higher level of understanding will be expected on topics that are required for either the research proposal or for the thesis topic.

*Once begun, no examination will be continued or recessed to a later date.* Students have the right to a second examination with the same committee if they do not pass the first examination. This second exam should be taken by the end of the quarter following the quarter of the first exam and may be based on the original, revised original, or a new research proposal. A revised or new proposal should be given to the examining committee at least one week before the second exam attempt.

If a student does not pass the Oral Qualifying Exam on the second try, they will be dismissed from the Ph.D. program. A student wishing to pursue a M.S. degree must then petition the Graduate Affairs Committee.

**Exam format (3 hours)**

Part 1: Prepare and present a summary of research results, including some background and future experiments (20 minutes). The examining committee will not expect extensive or definitive research results, but they will expect the student to elaborate on the motivation behind the investigation and to discuss possible direction(s) the research could take. The student should
demonstrate a very good concrete and theoretical grasp of the thesis project, and should be prepared to discuss any aspect the committee asks about.

Part 2: Pick an original idea, and write a proposal and abstract. The topic can be either:

a. An extension of current research but distinct from the current research plan and the PI’s funded research.

b. A topic unrelated to the student’s own research, outside the student’s research area.

The selection of an independent research proposal topic is very important, and a thoughtful reading of the recent literature and attendance at pertinent seminars is essential. The topic cannot be the thesis subject or any work that has been published, and should not be a project that has been, is being or is going to be carried out in the student’s research group or another research group. However, it can be an extension of current research as long as it is distinct from any current investigations underway in the PI’s lab. This caveat does not prevent the proposal from later developing into an actual project on its own merits. The specific systems and techniques proposed must be of the student’s own devising. The chair of the Research Committee must approve the proposed topic.

The proposal should contain an abstract, the necessary background for the proposed project, the experimental design, and a discussion of expected results and potential experimental problems. How these problems could be circumvented by alternative experiments should also be discussed. The research proposal presentation should last 20 minutes.

The exam takes up to three hours. The presentation of research progress shall be scheduled first and the proposal second. Each presentation is limited to 20 minutes, with the possibility of spending more time on the discussion of the student's own research. The Chair of the examining committee is responsible for overseeing the total time spent on each section of the exam.

At any time during and after each presentation, the members of the examining committee may ask questions related to the project or proposal, and also general questions to test the student’s mastery of the fundamentals of chemistry.

Nominating the Dissertation Reading Committee (DRC)

Immediately following a successful Qualifying Exam, submit a Nomination of Dissertation Reading Committee Form to the Chemistry Graduate Program office. This committee is usually but not necessarily identical to your Research Committee, with no outside member. If appropriate, and with permission of the Graduate Director, a student may add a fourth reader with relevant expertise.

Advancement to Candidacy (ATC)

After successfully completing the oral exam, submitting the Dissertation Reading Committee Form and paying a $90 fee, the student advances to candidacy at the beginning of the quarter following the exam. Ph.D. candidates are expected to complete the remaining degree requirements within nine quarters. Advanced (ATC) students are eligible for a non-campus fee for TAship ($356). International students also receive a waiver of Non-Resident Tuition ($5034 per quarter) for nine quarters after advancement; thereafter tuition reverts to 100% of the current amount charged. The Department of Chemistry & Biochemistry does not pay Non-Resident Tuition for any international student who is more than nine quarters advanced or who has been in the program longer than six calendar years. Ph.D. candidates must be registered for at least one quarter after advancement to candidacy before being awarded the degree.

After advancing to candidacy any student who started the graduate program in winter quarter is expected to meet the same schedule of prospectus updates and research reviews with their Research Committee as students who started in fall quarter.
Fourth-, Fifth- and Sixth-Year Requirements

After advancing to candidacy the Ph.D. candidate devotes full time to his/her own research and to writing the dissertation. A research project often develops into an article or poster presentation at a national or international conference, and later becomes the basis for a dissertation chapter. In addition, publishing significant research results at this stage can be exciting and sharing them at a conference can prepare the way for later collaborations. Some faculty members require their students to publish articles as their research develops.

Advanced students must meet with their Dissertation Reading Committee (DRC) at least once a year to report progress in an updated prospectus and get advice and guidance for the coming year. Since 2012-13, meetings with the DRC take place in Fall instead of Spring quarter. This change was phased in with students who took their oral exam in Fall 2011. Students who took orals in previous years continue to meet with their committee in Spring quarter. Always refer to your annual academic progress letter, issued in July or August, for the Graduate Affairs Committee’s instructions for the next academic year.

Fourth-year Prospectus and Review

The fourth-year review gives the student an opportunity to focus and plan their research and to begin shaping the final product—the research dissertation. With this goal in mind, the student presents their research progress to the committee, obtains feedback and receives guidance on future directions.

One week before the progress meeting the student gives the DRC an outline of the current research projects (finished and in progress), organized as dissertation chapters. The sections of the outline should cite any published papers, target a completion date for each research project, and finally estimate a overall time of completion for the thesis. The projected finish date should allow time for the process of writing, revising, incorporating changes suggested by the DRC, obtaining signatures and submitting the dissertation in the format prescribed by the Graduate Division (see Dissertation and Thesis Preparation Guidelines at http://graddiv.ucsc.edu/student_affairs/forms.php).

The chair of the DRC completes a progress checklist signed by all members of the committee. A narrative evaluation is optional. The chair submits the approved report and the student’s outline for the Graduate Director’s approval. The outline and report are kept in the student’s file.

Fifth-Year and Subsequent Years Prospectus and Review

Progress discussions and reviews are also held in Fall quarter of the fifth year and the sixth year, if necessary, until the dissertation is submitted. The format is the same as described above for the fourth-year review.

Dissertation and Dissertation Seminar

When the DRC agrees that the research is ready to be submitted, the student writes the dissertation according to the guidelines prescribed by the University Library and the Graduate Division. The dissertation title page is signed by all members of the DRC and by the Dean of the Graduate Division. Dissertations may be submitted electronically with the exception of the title page, which must show original signatures in hard copy.

The dissertation seminar, a presentation open to the public, should be scheduled at least one week prior to submitting the dissertation. The faculty, through the DRC chair, makes the final departmental decision regarding the awarding of the Ph.D. degree. The decision is subject to the approval of the Graduate Dean.

Filing Fee

In some cases it may be advisable for a student in good standing to apply for Filing Fee Status (FFS) instead of registering as a full-time student in the final quarter. The Filing Fee is $162. Because an important condition of FFS is that most campus services, campus employment
and financial aid are unavailable, this option is most suitable for students who have already obtained a job elsewhere or have some other means of support besides campus employment. In addition, you must be officially registered or on approved leave of absence the quarter before applying for Filing Fee Status. A student may go on Filing Fee Status only once. An application form can be downloaded from the Graduate Division’s web site.

**Applying to Graduate**

Students close to completing their degree must file an Application for the Ph.D. Degree early in the quarter in which they wish to graduate (see the Academic and Administrative Calendar for deadline). The application is your official notification to the Graduate Dean of your intent to graduate. This form is available on the Graduate Division’s web site [http://www.graddiv.ucsc.edu/student_affairs/forms.php](http://www.graddiv.ucsc.edu/student_affairs/forms.php).

**Academic Standing, Probation, Dismissal**

The by-laws of the Academic Senate state that graduate students can be dismissed at any time for not making satisfactory progress. Special circumstances might justify small delays in meeting the above requirements. Students may petition the Graduate Director for permission to postpone a particular exam, with the approval of their Research Advisor. This petition must be received in the quarter preceding the event. Failure to comply with this requirement can lead to dismissal from the Ph.D. program.

Since three courses per quarter (15 units) is the required load in the Department of Chemistry & Biochemistry, a student passing fewer than three is subject to academic sanction. If a student passes only two courses in any quarter, the Graduate Director sends a warning letter to the student.

If the student repeats and again passes only two courses, the Graduate Director will recommend to the Dean of the Division of Graduate Studies that the student be placed on academic probation. If a student passes fewer than two courses in any quarter, probation will be recommended. A student can also be placed on academic probation at the request of the Research Committee on the grounds of poor research progress or failure to pass any of the milestone requirements along the path to either graduate degree.

When a student’s research has not advanced sufficiently to present at the oral qualifying exam by the end of the third year, the department will recommend that a part of the research be completed and submitted as a M.S. research thesis.

The Dissertation Reading Committee and the Graduate Director will scrutinize very carefully the research progress of students who have been enrolled more than nine ATC quarters. When a student’s research and writing has not progressed sufficiently in the opinion of the DRC and the Graduate Director after the fourth, fifth or subsequent annual review during the nine quarters allotted to students to complete their dissertation work, the student’s DRC and the Graduate Director can decide whether to recommend probation or move the student to the M.S. program.

Progress review deadlines may only be extended with permission of the student’s advisor and the Graduate Director. Students not meeting their annual progress reporting requirement may be considered to be making insufficient progress.

TA performance is also an important factor in determining satisfactory academic progress. Feedback from the evaluations submitted by students and supervising instructors can be taken into consideration along with other measures of a TA’s academic progress.

Academic probation is declared by the Graduate Dean in writing, permanently noted on the student’s record, and is only lifted after the prescribed actions are taken by the student. One consequence is that students on academic probation are not eligible for merit fellowship support and will receive lower priority for academic appointments at UCSC, including teaching and research assistantships. The probation period can last from less than one quarter to a maximum
of one academic year. Once the student’s satisfactory status is restored, if subsequent performance is unsatisfactory in any way, dismissal is automatic.

For appealing academic judgments, see Appendix I, pp. 28-33.
# Ph.D. Program Requirements Timetable

## First Year

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|                  | Core courses in field of specialization | Electives as advised |            |
|                  | ----------------------------------------|----------------------|------------|

Join lab, **form Research Committee**

**Organic students must take each cumulative exam until they achieve four passes**

**Summer:** Conduct research in lab you have joined. Enroll in Chem 299A if required by Financial Aid.

## Second Year

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|                  | Core courses in field of specialization | Other electives as advised |            |
|                  | ----------------------------------------|-----------------------------|------------|

**Organic students continue to take each cumulative exam until they pass a total of four exams**

**Finish required coursework**

**Present second-year literature seminar F, W or Sp**

**Summer:** Dissertation Research

## Third Year

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Nominate orals committee

**Take Oral Qualifying Exam**

Nominate **Dissertation Reading Committee**

|                  | Chem 299 Dissertation Research | Chem 274-290 Group Meeting |
|                  | --------------------------------|-----------------------------|

**Advance to candidacy**

**Summer:** Dissertation Research

## Fourth Year

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**Fourth-year prospectus and meet with DRC for review**

**Summer:** Dissertation Research
Most students finish in five to five and one-half years. If a sixth year is necessary, it begins with an updated Dissertation Prospectus and progress review meeting with the Research Committee, even if the student expects to finish in Fall Quarter.

**Ph.D. Requirements Summarized**

1. Take all four attainment exams and pass three out of four by the end of Spring quarter in the first year.
2. Take 292 and 296 in Fall quarter of first year.
3. Take 291 Research Seminar every quarter until advanced to candidacy.
4. Organic students take each cumulative exam offered until they have passed four exams (12 chances).
5. Join a lab and form Research Committee in by May 1 in the first year.
6. Present second-year literature seminar on a topic outside research area in the 4th, 5th or 6th quarter.
7. TA at least three quarters in the first year and second years, before attempting Ph.D. oral qualifying exam.
8. Pass core and elective lecture courses in your concentration (25 units) by end of 7th quarter: at least three at 200 level, at least four in Chemistry & Biochemistry; with departmental approval, up to two courses may be at upper division undergraduate level. Courses taken to satisfy attainment requirements do not count.
9. In fall of the third year, pass Ph.D. oral qualifying exam before examining committee consisting of three Research Committee members plus one outside member approved by the Graduate Dean. Candidate presents and defends two research proposals: one on proposed original thesis research and one on an unrelated Chemistry or Biochemistry research topic.
10. Nominate Dissertation Reading Committee (DRC) and pay $90 fee,
11. Meet with DRC to review research progress and written prospectus in Fall of fourth year.
12. Meet with DRC to review research progress and written prospectus in Fall of fifth year.
13. Meet with DRC again in Fall of sixth year if research is still ongoing.
14. Submit dissertation based on original research.
15. Present dissertation seminar.
The average time to degree is five and one-quarter years. Ph.D. candidates are expected to complete research and write the dissertation within nine quarters of advancement (ATC). Financial support is no longer available after 18 quarters in the graduate program.

For both Ph.D. and M.S. students, the standard course load is three courses per quarter, or a total of at least 15 units per quarter. A student passing only two courses in two successive quarters will be placed on academic probation.

If a Ph.D. student fails to meet any requirement in the prescribed time, he or she may be dismissed from the Ph.D. program and directed to pursue a coursework M.S. degree.

FELLOWSHIPS AND GRANTS

AGEP Fellowship: UCSC’s Alliance for Graduate Education and the Professoriate AGEP is a partner in this UC system-wide effort to increase the number of underrepresented minority students (African American, Hispanic/Latino, Puerto Rican, Native American and, Native Pacific Islander) who are in science, engineering, and mathematics Ph.D programs and who are interested in careers in the professoriate. UCSC AGEP provides fellowships, activities and support services for eligible undergraduate and graduate students. For more information see [http://graddiv.ucsc.edu/student_affairs/agep.php](http://graddiv.ucsc.edu/student_affairs/agep.php).

ARCS Fellowship: A national organization, the ARCS Foundation (Achievement Rewards for College Scientists) provides funds for fellowships to high-achieving students in the fields of natural science, mathematics, medicine and engineering. Since 1976, the foundation has provided more than $1,200,000 to 207 students at UCSC. Faculty advisors recommend their students in February, and the Graduate Affairs Committee submits one nominee to the campus-wide competition. Awards range from $5,000-10,000.

NSF Bridge to the Doctorate Program: A National Science Foundation program aimed at increasing the number of minority students who earn doctoral degrees in science, technology, engineering and mathematics is providing nearly half a million dollars to support 12 students at UC Santa Cruz from 2010-13. This program has ended but may be renewed. The students, all in doctoral programs, received stipends of $30,000 each with an additional $10,500 per student coming to the University to pay for tuition, health insurance and other fees.

CBSE Research Mentorship Institute (RMI) Graduate Fellowship: Diversity Fellowships for Graduate Research in genomic sciences allow outstanding students to pursue research projects in areas relevant to the human genome, including the ethical, legal and social implications of genome research. These awards support the goal of increasing the numbers and capabilities of underrepresented minority scientists and science professionals. Several graduate awards each year provide stipend, tuition and fees. (This is an example of several fellowships administered by the Center for Biomolecular Science and Engineering (CBSE).

Chancellor’s Fellowships: The Division of Physical and Biological Sciences awards a limited number of “super” fellowships consisting of a $24,000 stipend plus fees and tuition for the first year. Departments nominate their most academically outstanding applicants as part of the admissions process. Each academic year 10 awards are available. Recipients may also be offered TAships in addition to this award. The benefits of these “super” fellowship awards vary from year to year. Apply by completing the Financial Aid part of the online application, due December 15.

Cota Robles Fellowship: The merit-based Eugene Cota-Robles Fellowships are awarded on a competitive basis to first-year graduate students who have overcome significant social or educational obstacles to achieve a college education, and whose backgrounds equip them to contribute to intellectual diversity among the graduate student population. For the 2014-15
academic year, the Cota-Robles fellowship provides a stipend of $21,000 plus payment of university fees, with non-resident tuition paid by the department and a $3000 stipend for summer research. The Cota-Robles Fellowship is part of a five-year total support package with the department providing support for years three and four and Graduate Division providing support for years one, two, and five. Apply by submitting the Financial Aid and Diversity Fellowship parts of the online application by the graduate program application deadline (December 15). Awards are based on: 50% academic achievement, 40% diversity, 10% departmental mentoring and financial contribution.

**Doctoral Student Sabbatical Quarter Fellowship:** The Division of Graduate Studies sponsors this fellowship program that pays recipients the equivalent of one quarter’s TA salary plus the associated fees, so that students without other funding can focus on their research without having to TA. Eligibility: Students must have worked as TAs for six out of the previous nine quarters and be advanced to candidacy. Applications accepted in April for the following academic year.

**Graduate Students’ Association Travel Grants:** UCSC’s Graduate Student Association (GSA) offers travel reimbursement grants averaging $300 to assist students who travel to perform thesis-related research or attend conferences related to their graduate projects. You may only apply after travel has been completed. Applications are accepted at the end of each quarter.

**UCSC Minority Biomedical Research Support (MBRS/IMSD):** The MBRS program offers in-depth experience in the academic and experimental aspects of biological research and prepares students to compete successfully for entry into graduate programs, internships, and professional schools. Stipend and fees for each approved quarter; some TAing required. Eligibility: full-time graduate students who meet academic qualifications. Website: [http://marcmbrs.ucsc.edu/](http://marcmbrs.ucsc.edu/).

**President's and Chancellor's Dissertation Year Fellowships:** The Graduate Council awards a limited number of President’s fellowships based on academic achievement, the potential for success in academics, and the extent the nominee contributes to the diversity of the pool of doctoral degree recipients. Pays a stipend of $21,000 (2014-15) plus fees for the academic year. Eligibility: US citizen or Permanent Resident; plan to finish dissertation by the end of the fellowship year. The Chancellor's fellowships are similar, but eligibility is extended to international grad students. Deadline: April/May.

**Regents’ Fellowship:** Incentive stipend offered to a limited number of graduate students for their first year. These awards are competitive and are determined by the department’s admissions committee during the admissions process. Apply by submitting the Financial Aid part of the online application by the graduate program application deadline.

**External Fellowships:** Information is available on many other fellowships from sources outside UCSC. Contact the Department of Chemistry & Biochemistry’s Graduate Program Coordinator (email jajones@ucsc.edu) for a list of internet links.
THE MASTER’S PROGRAM IN CHEMISTRY & BIOCHEMISTRY

UCSC currently offers two types of Master’s programs in Chemistry & Biochemistry: a research degree and a coursework degree. Both programs require full time registration.

Master’s Degree, Research Path (new students are not being admitted to this program in 2014-15)

This Master of Science program is a two-year sequence with requirements similar to those of the first two years of the Ph.D. program. Thus, all M.S. students must take the attainment exams on entrance, enroll in three courses per quarter, and take Chem 292 (thesis path) and Chem 296 (if they will be TAing). M.S. students also take Chem 291 each quarter. The coursework minimum is five lecture courses offered by the Department of Chemistry and Biochemistry beyond those required for fulfillment of UCSC’s BA/BS requirements. At least three courses must be at the graduate level (200 series), and the other two courses can be either at the graduate level or the advanced undergraduate level (100 series). These can include Chem 151B, but not Chem 151A, 163A, B or C. With permission of the department, a few carefully chosen courses in such fields as Mathematics, Physics, Biology, and Computer Science may be substituted for some of the Chemistry courses.

Research M.S. students are not required to present a seminar in their second year or take an oral exam. The degree’s Capstone requirement is a Master’s Thesis based on original research carried out during the first and second year. This thesis must be approved by a committee of three faculty members, who are selected at the end of the first year. It is not expected to be as comprehensive in scope or in depth as a Ph.D. thesis.

Master’s Degree, Coursework Path

The Department of Chemistry & Biochemistry offers a coursework path to the Master’s degree in which a student may earn the M.S. degree after approximately one year of coursework and a capstone seminar. This program serves the needs of such diverse groups as teachers on sabbaticals, technicians from industry and re-entry students. The degree can be finished in one year if the student is well prepared for all four attainment exams. Requirements are:

1. Pass three out of four attainment exams.
2. Take Chem 296 in the first quarter and Chem 291 each quarter the student is registered.
3. Enroll in three Chemistry & Biochemistry courses per quarter for three quarters.
4. Nominate a three-member Master’s Committee by the end of Winter quarter.
5. Nine courses are required; of these, at least seven must be lecture courses offered by the Department of Chemistry & Biochemistry. The remaining two courses may be lecture courses, seminars or independent study.
6. Of the seven Chemistry & Biochemistry lecture courses, at least four must be graduate level (200), but up to three may be advanced undergraduate level (100), excluding Chem 109-110. Courses used to satisfy attainment deficiencies (Chem 163ABC, 151A, 103, 143) do not count.
7. The seven lecture courses must include representatives from at least three of the chemistry sub-disciplines: biochemistry, inorganic, organic, and physical.
8. Final or capstone requirement: The candidate is required to present a passing literature seminar on a topic of her/his choosing, demonstrating the ability to read and critically analyze research data, to organize those data into a coherent presentation and to communicate the information in a clear and logical manner. As with the Second-Year Seminar, an abstract is required.
   a. A three-member Master’s Committee must approve the topic before the candidate begins library or online research. The seminar should be announced in the same manner as other seminars sponsored by the department, and the Master’s Committee must submit its evaluation within one week. The length of the presentation should approximate that of a professional seminar--45 minutes to one hour, followed by questions and discussion. Seminar length is the same regardless of sub-discipline.
b. The topic of this seminar should be of current interest to the chemical research community. Generally you will read many background papers to support the actual work presented. Your goal should be to teach the audience something they don’t know, and to connect it to information they do know.

c. A successful capstone seminar should display a thorough understanding of the chemistry underlying the topic for discussion. The student should be ready to answer questions concerning all aspects of the research. Faculty comments, which are used to develop the evaluation for the seminar, will focus on the content, organization, delivery, the abstract, the ability to appeal to an audience with different levels of understanding, and the ability to field questions.

M.S. REQUIREMENTS SUMMARIZED

Research Thesis Path:
1. Pass three out of four attainment exams in the first year.
2. Take 292 in fall of the first year.
3. Take 296 in fall of the first year if TAing at any time.
4. Join a lab and form Research Committee in spring of the first year.
5. Pass at least five Chemistry & Biochemistry lecture courses, of which at least three must be graduate level (200). Courses taken to satisfy attainment examination deficiencies are not counted.
6. Conduct original laboratory research.
7. Capstone requirement: thesis based on original research.

The Division of Graduate Studies sets a normative time of three years for meeting these degree requirements. If a research thesis M.S. student fails to meet any requirement in the prescribed time, he or she will be subject to dismissal from the research program and will be directed to pursue a coursework M.S. degree. A student in this situation has low priority for Teaching Assistantships.

Coursework Path:
1. Pass three out of four attainment exams in the first year.
2. Take 296 in fall of first year if TAing at any time, and 291 each quarter student is registered.
3. Nominate Master’s Committee by the end of Winter quarter of the first year.
4. Pass nine courses. Of these seven must be lecture courses (at least four at 200 level) from three of the four sub-disciplines. Courses used to satisfy attainment examination deficiencies do not count.
5. Capstone requirement: literature seminar.

If a coursework M.S. student fails to meet any requirement in the prescribed time, she or he will be subject to dismissal from the graduate program.
THE TEACHING ASSISTANT EXPERIENCE IN CHEMISTRY

Teaching Assistant Requirement

The focus on high quality undergraduate education is one of the most outstanding features of the UCSC campus. Teaching is a job that is taken very seriously and many graduate students and faculty come to UCSC because they want to be in an atmosphere where both teaching and research are important. Therefore, we require that each chemistry graduate student serve as a TA for a minimum of three quarters. Students must meet this requirement before advancing to candidacy. As a TA you have an opportunity to make a contribution to the education of students who are excited about learning science. Teaching can be a very rewarding aspect of your graduate career. You will assume substantial responsibility, and in doing your job well, you will receive respect and acknowledgment from others. In addition, you may discover that you have abilities of which you were not aware. A further advantage is the opportunity to learn the subject matter with a thoroughness that a student seldom achieves. Finally, you will have the opportunity to work closely with people and experience new relationships. Whether or not your eventual career is in teaching, the experience will be invaluable.

Chem 296 Teaching Chemistry

As excited as one can be about teaching, as many creative ideas as one might have, as eloquent or patient as one might be in the classroom, a new student usually finds that teaching can be a difficult process. Even the best teachers on this campus constantly work to improve their teaching. Regardless of your experience before coming to UCSC, there is much to learn about this new activity. For this reason we have established a series of weekly seminars (Chem 296) to explore and develop your teaching skills throughout Fall Quarter. In Chem 296, students will begin to develop a solid foundation in the mechanics and art of teaching, as well as receive instruction on the safety, health and emergency response issues relevant to their teaching and research career within the department. The Chem 296 seminar is required of all new graduate students.

You may have some unique ideas about what you want to try in your classroom—perhaps some techniques that you learned from outstanding professors. There also may be some things that you will never do. Between these two extremes there is much room to learn about how to be an effective teacher. Often what we call “poor” teaching is the result of simply not knowing how to do what works best for you in the classroom. Each 296 seminar will be devoted to a broad topic, such as laboratory or discussion section teaching, asking questions effectively, or writing evaluations. Rather than emphasize specific techniques, we will encourage you to share your experiences (the good ones and the bad ones), to learn from others and to discuss and try new ideas. We cannot overemphasize that there is no “correct” way to teach. Throughout the course, you will get comments on your effectiveness. One of the best aspects of Chem 296 is that you will develop friendships and working relationships with your peers.

Teaching Assignments and Duties

TA assignments are made through the Chemistry Graduate Program office on the basis of applications submitted each quarter by graduate students. TA applicants are encouraged to communicate which courses they prefer to teach. While it is not always possible, every attempt is made to honor these wishes. Other factors determining assignments and assignment changes are course enrollment, previous experience, seniority, previous performance, instructor preference, section time conflicts with TAs’ own course schedules, academic status, etc.

A Teaching Assistantship is a 50% appointment. The total commitment is 20 hours per week (220 hours per quarter). Duties include formal contact hours in class and lab sections; grading problem sets, lab reports and exams; attending the instructor’s lectures; preparing for sections; holding office hours, attending TA meetings, etc.

An agreement between the Academic Student Employees/UAW union and UCSC sets Teaching Assistant salaries annually. Besides being a form of employment, a TAship carries financial aid in that it pays for most of a student’s quarterly tuition and fees.
It is important to fulfill all the teaching assignments and responsibilities of the Teaching Assistantship. The Department of Chemistry & Biochemistry considers all prior TA performance when awarding TAships each year. Unsatisfactory performance will affect priority for subsequent TA assignments and TAship renewal.

**Lab and Discussion Section Teaching**

The primary teaching responsibilities for most Chemistry TAs are laboratory teaching and discussion section(s). TAs teach either two lab sections or four discussion sections. TAs are expected to be well prepared for their sections. A critically important responsibility for lab TAs is to ensure safety in the laboratory. To this end, not only TAs but all grad students are required to complete the Lab Safety Training offered by the PBSci Division’s Environmental Health & Safety office. Requirements and responsibilities for teaching discussion sections vary and will be distributed by the professor teaching your course at the first TA meeting of the quarter.

**Record Keeping and Evaluations**

You need to keep records of student attendance in sections, completion of assigned experiments or problem sets, grades on quizzes, exams and other homework. Assessment of lab section students also includes grading lab reports and periodic inspection of lab notebooks.

At the end of the course, you will provide the professor with a short written paragraph commenting on each student’s work in your section(s). Some professors may use your comments verbatim as part of the official Narrative Evaluation of student performance. Others may use your paragraph as the basis for statements they write about student performance in the lab part of the course. Some instructors use automated systems to produce customized Narrative Evaluations. Writing narrative evaluations is covered in Chem 296.

Undergraduates complete written evaluations of their TAs and professors at the end of the course. Student evaluations of teaching provide valuable guidance and comments to TAs and become a part of institutional records. You are encouraged to take these evaluations seriously and are required to read them each quarter.

**Office Hours**

As a TA you will hold office hours, that is, hours when you will be available for consultation with students. Arrange at least two 60-minute hours per week at times that are convenient for both you and for students. For example, you might set office hours at 10:00 to 11:00 a.m. on Wednesdays and 1:00 to 2:00 p.m. on Thursdays. Do not schedule office hours in the same course slot, i.e., 10:00 to 11:00 a.m. Wednesday and Friday, because students taking a course MWF at 10:00 a.m. would not be able to attend either time.

Usually TAs hold office hours in 341 PSB, in the PSB atrium or in conference rooms. Other locations are acceptable providing it is regularly available to you for that purpose and convenient for access by students. The Department Assistant will announce office-hour sign-ups in the second week of each quarter. TA office hours are posted on the departmental web site.

**Responsibility for Teaching Your Sections**

You are responsible for teaching your assigned sections at the day, time and location arranged. If an unavoidable absence prevents you from teaching your section, please contact the instructor of the class well ahead of time with arrangements for a qualified replacement, preferably another TA for the same course.

**Teaching Awards**

TAs who have taught for 8-12 quarters are eligible to be considered for annual campus-wide Outstanding Teaching Assistant awards. Departmental nominations are based on undergraduate students’ evaluations of their TAs as well as evaluations from faculty the TAs have worked with. The award carries a cash prize and certificate. The department also
makes its own award to a TA who might not be eligible for the campus award but who has nevertheless distinguished themselves in the performance of their TA duties.

**Association of Student Employees (ASE/UAW)**

Since the ratification of the first UC/ASE (UAW) agreement in 2000, UCSC Teaching Assistants are represented by a bargaining unit. The full text of the current agreement can be accessed on line at [http://atyourservice.ucop.edu/employees/policies/systemwide_contracts/uaw/index.html](http://atyourservice.ucop.edu/employees/policies/systemwide_contracts/uaw/index.html).

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**Appendix: 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, and
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 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;

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.

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1 The term “working days” means Monday through Friday, excluding University holidays.
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.

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.

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, first; 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 CAPPM 002.015 or the
relevant collective bargaining agreement. A complaint may be filed by the student or by others consistent with CAPPM 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.