Graduate Student Handbook

DEPARTMENT OF BIOLOGICAL SCIENCES
CALIFORNIA STATE UNIVERSITY, LONG BEACH

October 2016
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Welcome to Graduate School in the Biological Sciences Department at CSULB!

This handbook was developed to give graduate students and faculty guidance in some of the processes associated with completing a M.S. degree in this department. This document is a supplement to the Degree Requirements listed in the current CSULB Catalog under University Requirements (in the front) and Departmental Requirements (in the Biological Sciences section). This handout is not an official document. Always follow the current CSULB Catalog if you find any discrepancies in requirement information, then contact the Department Graduate Advisor and Graduate Services Coordinator.

Knowledge and skill proficiency expectations of our M.S. degree graduates:

1. Have advanced knowledge in their degree field (Biology or Microbiology).

2. Be able to design and implement experiments, and analyze and interpret data from a study using methods appropriate in one’s field.

3. Be able to effectively communicate their scientific research in oral and written forms at a professional level (e.g. regional or national scientific meetings, professional abstracts, posters, grant proposals, peer-reviewed publications and reports).

4. Be knowledgeable of ethical expectations of a professional scientist.

5. At least one semester working as a Teaching Associate or Graduate Assistant is required which provides important professional development. This requirement can be waived by the Department Chair or Graduate Advisor under special circumstances.
PERSONNEL

DEAN OF GRADUATE STUDIES - oversees all CSULB graduate programs; approves or disallows petitions to change or to grant waivers to the University and Department Graduate Degree Requirements as published in the CSULB Catalog.

COLLEGE OF NATURAL SCIENCES AND MATHEMATICS DEAN OF GRADUATE STUDIES - provides input to faculty and students concerning the degree program and University requirements.

DEPARTMENT OF BIOLOGICAL SCIENCES GRADUATE SERVICES COORDINATOR (Kay Belletti, HSCI 108B, (562) 985-7928, kay.belletti@csulb.edu) - oversees graduate application process; maintains graduate files; tracks the adherence of programs and student progress to Department and University requirements; serves as a resource person, and resolves problems.

DEPARTMENT OF BIOLOGICAL SCIENCES GRADUATE ADVISOR (Dr. Kevin Sinchak, HSCI-140, (562) 985-8649, kevin.sinchak@csulb.edu) - oversees the acceptance, proposal establishment, and completion processes; resolves problems between students and faculty, serves as final departmental quality control on the thesis.

DEPARTMENT OF BIOLOGICAL SCIENCES CHAIRPERSON (Dr. Brian Livingston, HSCI-104, (562) 985-4806 – determines TA and GA assignments, resolves problems between students and faculty, final signature on the thesis.)
THE FIRST YEAR

Besides taking your classes, doing research, and possibly your duties as a teaching assistant or graduate assistant, listed below are the general steps that need to be completed during the first year of your tenure here. Not fulfilling these requirements by the end of your second semester is cause for Probation and Disqualification which can result in the dismissal from the graduate program.

___ PASS THE GRADUATION WRITING ASSESSMENT REQUIREMENT (GWAR; if required)

___ ESTABLISH A THESIS COMMITTEE

___ PRODUCE YOUR THESIS PROPOSAL
   Disseminate to your committee
   Set a date for the defense of your thesis proposal

During the meeting with your graduate committee you will

___ ESTABLISH AN OFFICIAL GRADUATE PROGRAM OF STUDY (Form needed)

___ PRODUCE & DEFEND YOUR THESIS PROPOSAL (Form needed)

___ ADVANCEMENT TO CANDIDACY

(Pick up forms in the Department Graduate Office or
download from MS Biological Sciences/Microbiology website).
FIRST-YEAR COURSEWORK

In consultation with your Thesis Chair and Thesis Committee, and/or the Graduate Advisor, enroll in courses that match your general research area at the upper division level (300, 400, 500, or 600 numbers). Most courses that you take before you establish a formal Program of Study may be put on this program, up to a total of 12 units. See ESTABLISHING A PROGRAM OF STUDY below.

THESIS CHAIR (Advisor)

As indicated in your acceptance letter, a professor has agreed to be your Thesis Chair and is in most cases the Thesis Advisor. Given the selection process their research interests should match your own. You should sign up for Directed Studies (BIOL/MICR 697*) with your research advisor. This course allows you to learn what types of research are done in your research group and how you might fit into that program. However, early on in your studies you may find that you wish to work with someone else, and it is possible to request to change labs during your first year. It is also useful to talk to other graduate students and faculty about the various research interests of the other faculty, and who might have an opening for a new graduate student. Requesting a change of Thesis Chair/advisor may require you to receive an extension for the Thesis Proposal submission and ultimately Advancement to Candidacy.

* 697 - DIRECTED RESEARCH – (from the course catalog) Research on specific topic approved and directed by a faculty member in the biological sciences. Written report required. NOTE: the research must be different from the research for your Master’s thesis project.

The Role of the Thesis Advisor:
The primary role of the Thesis Advisor is to guide and mentor a graduate student working in their laboratory throughout the thesis research and academic program, ensuring the student is making continued satisfactory progress towards completion of the degree.

The Thesis Advisor is responsible for:
1. Providing the Graduate Program Coordinator formal notification of their willingness to advise a particular applicant to the graduate program. This acknowledgement must be provided in writing prior to the review of the student’s application by the Graduate Studies Committee.
2. Helping graduate students identify an appropriate research topic, develop a thesis proposal, form a Thesis Committee, and successfully defend the proposal.
3. Providing laboratory space, equipment and supplies, and mentoring necessary for successful completion of the research project.
4. Advising graduate students about degree program requirements in consultation with the Graduate Coordinator.
5. Helping graduate students find financial support through grant proposals, scholarships, and fellowships.
6. Ensuring that the written thesis is sufficiently edited prior to timely distribution to the committee and Graduate Advisor.

7. Ensuring that the graduate student is adequately prepared to give their public thesis defense.

8. Aiding the graduate student with publishing their thesis work and preparing the graduate student to present oral and/or poster presentations at scientific meetings.

9. Ensuring that the graduate student and resulting thesis meet Department and University standards for knowledge in the field and research quality.

A Thesis Advisor is allowed to resign from a graduate student's committee if they feel that the student is i) not making satisfactory progress towards their degree, ii) not heeding the advice of the thesis advisor, and/or iii) has not had contact with the graduate student in over 1 semester.

If there are problems where students are not making progress and feel as though they are not receiving sufficient advising, a meeting will be organized by the graduate advisor with a review committee (consisting of the student, the Thesis Committee and a member of the Graduate Studies Committee). The committee will provide recommendations to the student and the Thesis Committee on how to resume progress towards the thesis. In the absence of a resolution of identified problems or repeated requests for committee reviews, the thesis advisor will work with the Department Chair to develop an appropriate mentoring plan.

FORMING A THESIS COMMITTEE

Members of the Thesis Committee should be in place at least one month ahead of the proposal defense. In addition to the faculty member who has agreed to be your Thesis Chair, two other thesis committee members need to be selected. These members should have some interest and expertise in your research field so that they may constructively add to your research efforts. At least two members (including the Thesis Chair) must be tenured/tenure-track faculty from the Department of Biological Sciences; one or more additional members may be from outside of the department. It is the responsibility of the student/Advisor to supply a CV and contact information from any committee member who is not tenured/tenure-track faculty at CSULB to the Graduate Services Coordinator (Kay Belletti). This must be submitted at least a month before the thesis proposal defense and must be approved by the Graduate Advisor.

If the Thesis Advisor is from outside of the department (the Chair must be faculty on campus), it is the responsibility of the student to ensure that the other committee members remain updated on thesis progress. The Graduate Studies Committee may terminate a Thesis Committee if it is obvious that departmental faculty are not actively involved in the student’s research program.

The Role of the Thesis Committee:
The primary role of a Thesis Committee member is to provide assistance, advice, and guidance to a graduate student to ensure that the thesis research and resulting thesis meets the Department and University standards.
A Thesis Committee member is responsible for:
1. Reviewing the graduate student’s thesis proposal and providing feedback that will enable to them to make satisfactory progress in their research.
2. Assisting the thesis advisor in formulating a program of study for the student.
3. Providing the student with feedback on their thesis updates.
4. Providing the student with written edits and comments on their thesis within 7 days of receiving the thesis advisor approved thesis.
5. Attending the public and private thesis defense.
6. Ensuring that the thesis, public and private defense meet Department and University standards.

A committee member is entitled to not approve any thesis defense or written thesis that they feel does not meet the Department or University standards. A committee member is entitled to resign from a student’s committee if they feel the student is i) not making satisfactory progress towards their degree, ii) not heeding the advice of the committee, and iii) has not made contact within the last year.

ESTABLISHING A PROGRAM OF STUDY

You and your Thesis Chair should fill in the "Graduate Program for the Master of Science" form obtained from the Department Graduate Office with a tentative list of courses; these will be discussed for approval at the first Thesis Committee meeting. Only one 300-level class, with an asterisk, is permitted on the M.S. in Biology Program of Study, and two specific 300-level courses may be included on a M.S. in Microbiology Program of Study. Refer to the CSULB Catalog for other university and departmental restrictions.

THE FIRST THESIS COMMITTEE MEETING TO ESTABLISH THE PROGRAM

Notify the Thesis Committee of the proposed meeting date and provide all members of the Thesis Committee with a copy of your Thesis Proposal and a list of suggested courses for the program at least one week prior to the meeting (pick up forms in the Dept. Graduate Office, HSCI 108B or download from the MS Biology/Microbiology website:

Biology
http://www.csulb.edu/depts/biology/pages/PDFs/PROGRAM_BIOL.pdf
http://www.csulb.edu/depts/biology/pages/PDFs/THESIS_PROPOSAL.pdf

Microbiology

Your Thesis Committee and you will meet together, and you will present a 20-30 minute slide presentation of your proposed research, followed by a discussion of your proposal. Towards the end of the meeting, the student will leave the room while the committee discusses the proposal, and decides whether it is acceptable. Following the decision on the acceptability of your proposal, you will be provided requirements for the final draft of the proposal. You and your committee will also determine the class
requirements for your Program of Study for the graduate program during this meeting. Send the final acceptable version of your proposal to your Thesis Committee members and the Graduate Advisor. Plan at least an hour for the process. This fulfills one of the requirements for your Advancement to Candidacy (see below).

DEFINITION AND REGULATIONS FOR GRADUATE THESES AND PROJECTS  

THE THESIS PROPOSAL

Your proposal should include the following sections: 1) an Introduction that contains a project summary and clearly indicates the Background, Significance and Specific Aims of the proposal, 2) a Methods section detailed enough so that someone familiar with your specialty can discern the appropriateness of the Research Design and Methodology, 3) an expected results and alternative outcomes section, 4) a References Cited section, and 5) a Budget page where the costs of the project are presented along with the sources of the necessary funds. A Preliminary Studies section may be provided if you have started working on your research. The proposal will be double-spaced and font shall be either Arial or Times New Roman and no smaller than 11pt font. See section on Writing a Thesis Proposal.

OFF CAMPUS RESEARCH

If the majority of the thesis research is to be conducted and supervised at an off-campus site, the Thesis Proposal must clearly delineate the contributions by CSULB Thesis Committee members and the off-site personnel. Fiscal contributions must also be clearly identified as to source in the Budget.

THE PROGRAM OF STUDY

The Program of Study is comprised of the courses that you and your Thesis Committee determine to fit your needs for your degree. This may include no more than 12 units taken prior to its establishment. In addition, only 9 units are permitted from a different college or university. Each program will contain the following courses; Research Design (BIOL 696A; 2 units), Scientific Communication (BIOL 696B; 2 units), Seminars (BIOL 580; Biology MS only), Thesis (BIOL/MICR 698; 6 units), Directed Research (BIOL/MICR 697; 1-3 units). A minimum of 30 units must appear on the program, including seminar and thesis units; but you may take other courses that are relevant or that you find interesting. See the current CSULB Catalog for more relevant information on course requirements. The courses on the formal program may be changed at a later date if approved by your Thesis Committee. Note: the 7-year limit to the graduate program is referenced to the date of completion of the earliest completed course on this program.

GRADUATE CREDIT EARNED AS A SENIOR  

FAILURE TO COMPLETE THESE FIRST-YEAR REQUIREMENTS BY THE END OF THE SECOND SEMESTER IN RESIDENCE WILL RESULT IN TERMINATION OF YOUR ACCEPTANCE INTO THE M.S. DEGREE PROGRAM.
**Advancement to Candidacy**

Advancement to candidacy confers the equivalent of catalog rights on graduate students. Advancement to candidacy also signifies approval of a plan of study by the student’s major department and college.

The requirements for advancement to candidacy are:

1. Attainment of classified status as a student in a graduate program at CSULB;
2. Fulfillment of the Graduation Writing Assessment Requirement (GWAR). Information is available in Testing and Evaluation Services;
3. Approval by the student’s Thesis Committee, Department, and College of a Thesis Proposal and Program of Study;
4. Completion with a minimum GPA of 3.0 of at least six units of courses required on the student’s program of study;
5. A cumulative, graduate, grade-point average of at least 3.0 calculated on all upper-division and graduate-level coursework attempted by the student at CSULB after completion of a baccalaureate degree;
6. Satisfactory completion of any assessments of competence that the department may require.

After your thesis proposal committee meeting, turn in your approved Thesis Proposal and Program of Study into Kay Belletti, Department of Biological Sciences.
SECOND AND THIRD YEAR

Besides taking your classes, doing research, and possibly your duties as a teaching assistant or graduate assistant, listed below are the general steps that need to be performed to complete your degree. Not fulfilling these requirements is cause for Probation and Disqualification which can result in the dismissal from the graduate program.

___ FINISH COURSES ON THE OFFICIAL GRADUATE PROGRAM OF STUDY.

___ SUBMIT "REQUEST TO GRADUATE" FORM at Enrollment Services (The preceding May 1 - October 15 for spring or summer graduation, and the preceding December 1 - March 1 for fall). (Dates appear in the Schedule of Classes).

___ FINISH THE RESEARCH AND COMPLETE THE WRITING (before the start of the graduation semester).

___ Graduate students are encouraged to attend all departmental seminars as part of their professional training.

___ Submit twice yearly Research Progress Updates.

___ Maintain continuous enrollment until graduation (GS700).
Research Progress Updates

The Research Progress Updates (RPU) is a formal document that is an important part of the Master of Science program. It allows your thesis committee and the Graduate Studies Committee to assess your progress within the program. The RPU is not only important for continuing the program, but may be used to determine whether you will receive a TA/GA position. These RPU’s need to be a description of what you have accomplished during the period since the previous RPU or thesis proposal. It is important to keep your committee informed with your progress and to continue to make satisfactory progress in your research. Make sure to use your committee members to help you when you get stuck. **First year graduate students DO NOT submit RPU’s.**

Masters students must submit the RPU at the beginning of your second academic year and continue to submit RPU’s until you turn in your thesis to the library. The RPU is due twice a year at the beginning of the fall semester (September 30th) and end of the spring semester (May 31st).

Research Progress Update - Format

**Do not assume that your committee members remember your project and on what you are working.** The format of the PRU should be either a long abstract (at least 2 pages double spaced) or as a brief communication in a journal. Included should be a short background to the research problem, hypothesis, methods performed, data collected and analyzed and the interpretation of those data. In addition, you should include what you are planning to do next and what is left to do for your thesis.

Your RPU will be formatted as a Word document or pdf. The file name will contain your name the semester and year (e.g. yourname-Fall 201X.doc or *.docx). You will upload your RPU on the graduate student site on Beachboard as well as sending it an email attachment to your all your Thesis Committee members and the Graduate Advisor (Dr. Sinchak – kevin.sinchak@csulb.edu).

***Not providing a Research Progress Update for a year indicates that you are not progressing and is a reason for termination from the MS degree program via Administrative Academic Probation process. See the definition in the University Catalog by following the link below:

**Policy on Probation and Disqualification**

http://www.csulb.edu/divisions/aa/catalog/current/academic_regulations/probate_disqualification.html
ANNUAL REVIEW OF STUDENT PROGRESS
A Student Progress Review will be implemented when concerns about student progress are raised. The goal of the formal review is to:

1) ensure that a student progresses smoothly on their degree work, completing it about 2 years after their official MS degree program was established (Advancement to Candidacy);

2) have problems with the scope and methods of the thesis research identified early and resolved in a timely fashion with input from the whole committee;

3) provide the Department Chair with information used in making TA and GA assignments ("satisfactory progress on the degree" is one of the criteria).

If the degree has not been completed 7 years from when the first course on the program was completed, the student's MS degree program will be terminated.

Instructions for this review will be supplied to you at the time of the request.

MAINTAINING CONTINUOUS ENROLLMENT
Students who fail to maintain continuous enrollment must reapply to the University and to the Department of Biological Sciences for admission to the graduate program and be accepted (this includes having a thesis advisor agree to accept you). Every semester, graduate students must be enrolled in one or more courses (depending on your status), or in GS700 (must have completed all courses on your Program of Study), or must have an approved educational leave. Please refer to the CSULB Catalog for details.

THERE ARE NO LATE ADDS to GS 700
The Administration will not make exceptions! Reread the above for the ramification of not signing up for GS 700 on time.

Policy on Graduate Studies 700

LEAVES OF ABSENCE
In order for you to do research on your thesis, you must be registered at CSULB for each semester. If you must leave the university, you will need to file for an educational or medical leave of absence. Unapproved absences for one semester will result in the invalidation of your formal program (refer to CSULB Catalog under University Requirements). You must then reapply to the University as well as the MS program in Biology/Microbiology and find a faculty member that will agree to be your thesis chair/advisor.

EDUCATIONAL LEAVE
http://www.csulb.edu/divisions/aa/grad_undergrad/senate/documents/policy/1984/06/
ACADEMIC PROBATION

Graduate students must maintain a 3.0 GPA in all courses taken while at CSULB (since the B.A./B.S.) and must have a 3.0 GPA in courses on the formal program (any course on the program with a grade lower than a "C" will not count for the M.S. Degree). Any student whose GPA falls below a 3.0 will have one semester to bring the GPA up to 3.0; failure to do so in next semester will trigger the termination of the program and disqualification due to Academic Disqualification. Academic Disqualification will bar the graduate student from registering as a matriculated student at CSULB. See link to University Catalog for the definition and stipulations:

Policy on Probation and Disqualification
http://www.csulb.edu/divisions/aa/catalog/current/academic_regulations/academic_disqualification.html

CHANGES IN THE THESIS OBJECTIVES OR COMMITTEE

The whole Thesis Committee must approve any major changes in the thesis proposal, and a new proposal approval form needs to be filed with the Graduate Services Coordinator.

It sometimes becomes necessary to change the Thesis Committee membership, including the Thesis Advisor. This normally is not a major problem; it requires a formal "Change of Program Form" and, perhaps, a new thesis proposal. Consult with the Graduate Advisor.
WRITING A THESIS PROPOSAL

There are no universal rules for writing a thesis proposal. The purpose here is to give you some guidelines to follow and to let you know what is expected for your written thesis proposal. The outline below is a very common and logical layout that should be used when organizing your thesis research proposal. Discuss the format of the thesis proposal, however, with your thesis committee chair, because your chair may have specific reasons for you to alter this general format. The GSC highly recommends that you seek past proposals in your field that are considered high quality examples of how a proposal should be formatted and written (you can also learn from reviewing the bad ones for what not to do as well). The quality of your written thesis proposal has to satisfy your committee members AND the Graduate Advisor. The Graduate Advisor will receive the final edited version of your proposal and will read the document for approval. It is possible that you may have additional revisions even after your committee approves.

In General: It is wise to format your thesis proposal to the format of the actual Master’s Thesis that will be submitted to the library. For example, the document will be double-spaced with one inch margins and proper page numbering. It should also follow the general design with an introduction (literature search, preliminary studies/results) that leads to a hypothesis being tested, experimental design and methods, preliminary and/or expected results, discussion of potential results, a discussion of potential alternate outcomes that may occur, and References. A budget for the expenses associated with your proposed project (which is not a part of the thesis) is the last section of your thesis proposal.

**Title Page (1 page)**

This should look similar to the title page of the final thesis. It should have the Title, author and author affiliation, month and year of proposal, committee members, and Graduate Advisor listed.

**Project Summary (1 page)**

This is normally a one to two page abstract of your proposed project. It should introduce the background leading to the specific aims (hypothesis tested) and provide a general experimental design, expected results, and general comments on the scientific significance of the outcome of the project.

*Writing this section after writing the next four sections may be easier, as you will then have a more complete picture of the scope and nature of the work you are proposing as a thesis project.*

**Specific Aims (1 page)**

Describe 1-3 specific aims of your project. This section often consists of one paragraph, and it should be no more than one page in length. It begins with an introductory section that includes a clearly-written overall hypothesis, followed by a description of each specific aim given (often as one sentence each). It is a good idea to highlight (e.g., bold, italics, etc.) the words ‘hypothesis‘ and ‘specific aim‘.
Background and Significance (5-10 pages)

This is an important section of your proposal. It describes background and details about each of the specific aims given above. This section includes a more in-depth introduction of the scientific field at hand. This section should include an extensive review of the literature important for understanding the hypothesis being tested. For some proposals, students may choose to include in the introduction a discussion of how each specific aim fits into the field and emphasize the significance of the proposed research to the field of biology you are working in. The information (story) should funnel towards a final paragraph that indicates the hypothesis(es) being tested in your set of experiments.

Preliminary data

You may have already integrated your preliminary data in the Background and Significance portion of the proposal. If you have done this, you should emphasize what you have done and then you may not have to have a Preliminary Data section.

If you have not integrated preliminary data into the previous section, then in this section, describe the preliminary data you have obtained (if any…) that lead to and support your proposed hypothesis for your thesis research. In this section you will also demonstrate to your thesis committee that you are capable of doing a portion of the project (you understand the necessary techniques, etc.). It is also very useful if you refer your readers to the particular specific aim for which the preliminary data are applicable.

Research Design and Methodology (5-10 pages)

This is the most important section of your proposal. Here you will describe the design and methods of the experiments you plan to do under each specific aim. One approach is to provide first an overall general experimental design for each experiment followed by the detailed methods of the techniques used.

It is important that your readers are able to determine exactly what you are going to do in your experiments. If your committee cannot understand the design and methods you are in for a long defense of your proposal.

In addition, in this section you will describe how your data will be analyzed for each experiment. This includes the type of statistical analyses used for each experiment. You will also mention any collaboration you have with other scientists and how their work fits into your project.

Expected Results, Alternate Outcomes and Interpretations (2-5 pages)
Given that your thesis should be hypothesis driven, (in most cases) there will be clear expectations for the results of your study. You should describe the expected results and how they relate back to your hypothesis. Conversely, your hypothesis may not be correct, therefore you will provide alternative results, and indicate how they would modify your data interpretation and alter your hypothesis and potentially the other experiments in the proposal. You may choose to include a figure with hypothetical data to demonstrate the types of results you expect and how you plan to analyze and exhibit them in your thesis.

References Cited

See the official Master’s Thesis Format available in this handbook. You should invest the bibliography/citation manager (e.g. Endnote, Reference Manager, RefWorks etc…) that is used within the laboratory. This will save you a LOT of time and energy, especially if your lab has reference libraries already.

Figures and Figure Legends

Figures should be formatted like a manuscript. The axes should be properly labeled with complete legends that explain the figure. Define the acronyms used and statistical icons used in the legend. Find examples in the journals that are in your field as examples. Sloppy figures will not be tolerated.

Budget

The budget is not meant to be an in-depth analysis of costs. Rather, it is meant to provide an approximation of the total costs of doing your thesis research. Work with your Thesis Advisor on advice on writing this brief budget.

Timetable

A realistic timetable should be included that describes when specific aims will be accomplished.

Revision of Thesis Proposal After Proposal Committee Meeting

Following your proposal committee meeting, the committee will likely have edits and suggestions to the proposed research. The committee-approved, revised version of your written thesis proposal will be the version that you turn in to the Graduate Advisor for advancement to candidacy. This must be an electronic version that you will upload to the Dropbox named “Revised proposal after Proposal committee meeting SPRING 20XX” that is on the BeachBoard site (Biological Sciences – Graduate Programs). A hard copy of the final proposal with the thesis committee signed paperwork will be turned into Kay Belletti in the Graduate Program Office. It is possible that you may have this returned to you for further editing if the Graduate Advisor does not approve of the edited version.
PUBLIC THESIS DEFENSE INFORMATION

Your Thesis Advisor should see a first draft of your written thesis approximately two months prior to the Public Defense to allow time for revisions.

1) Did you file a Request to Graduate with Enrollment Services for the appropriate semester/year?

Filing dates are listed in the Schedule of Classes and on the Biological Sciences Graduate Student BeachBoard site.

Deadlines are established each year, and the Library deadline has no flexibility.

2) You must be registered for an academic course or GS700 during the term you graduate. Make an appointment to meet with Kay Belletti before registration ends during your last semester. This is to review your Graduate Program of Study and be sure you have actually completed all of your required courses to graduate!

3) Public Thesis Defense: Schedule a date/time for your Public Thesis Defense with your Thesis Committee early in the semester. E-mail Kay Belletti with the following information, one month in advance:

1) the date/time of your Defense
2) your current thesis title.

With this information she will schedule room(s), post flyers, notify faculty/students, and prepare a Thesis Defense sign-off form. The Thesis Committee and a member of the Graduate Studies Committee must be in attendance at the public defense.

The student may not defend the thesis during Final Exam Week or during the summer or winter terms.

4) The written thesis must be given to your Thesis Committee three weeks prior to the defense.

- An electronic version must also be submitted to the Dropbox on the Graduate Student BeachBoard site under the section “Thesis Uploads PRE and POST Defense”. A section “Thesis UPLOAD PRIOR to your defense” will be clearly labeled on the Dropbox page.

- Your file should be clearly identified in its filename as the first submission. Committee Members will read the thesis and provide feedback prior to or by the day of the defense.

5) Prepare for your oral public defense: Your oral public defense should be 30-40 min long and designed to appeal to a broad audience, yet demonstrate your research acumen. Be prepared to defend your work. Faculty, students, and
members of the public can ask you questions and you must be able to defend your work, or you may not pass your defense. ***Attend other students' Public Defenses to understand what is expected of you when you defend your research.

The Thesis Defense will begin with a public presentation by the student followed by questions from the audience. When this question session is done, the public attendees will be dismissed from the room. Immediately following, you (the student), the thesis committee, and a representative from the Graduate Student Committee will then hold a private in-depth discussion and defense of the research findings. It is very important that you are fully knowledgeable about your work and can adequately defend it. At the end of this private session with your committee and the GSC member, a decision by the Thesis Committee and GSC member will be made to approve or not approve the oral defense and written thesis.

Your committee may:
- Fail your oral defense and require you orally defend your thesis again
- Pass your oral defense of your thesis but require major or minor revisions to the written thesis that may
  - Require full committee approval
  - Require some or only the Thesis Committee Chair approval

6) Final thesis approval
After your defense you will be given a timeline to finish your revisions to submit to your Thesis Committee. The members of your Thesis Committee must approve of the revisions.

- Once your committee agrees to all revisions, they will sign the signature page of your thesis.

7) Submit final Thesis Committee approved thesis to The Graduate Advisor via Beachboard

- After your committee has signed off you will provide The Graduate Advisor your thesis for final read through for approval for signature from the Chair of Biological Sciences. An electronic version must be submitted to the Dropbox on the Graduate Student BeachBoard site under the section “Thesis Uploads PRE and POST Defense”. A section “FINAL THESIS UPLOAD after Defense for APPROVAL to get CHAIRS SIGNATURE” will be clearly labeled on the Dropbox page.
  - Your name should be clearly identified in the filename of your thesis and as the final submission.
  - E-mail The Graduate Advisor (kevin.sinchak@csulb.edu) that you have uploaded your final version of your thesis to the dropbox.
  - IMPORTANT – this version should be as close to “library submission” as possible. The Graduate Advisor will deny Chair signature if there are glaring formatting/grammar or other issues.

After approval from the Graduate Advisor, via e-mail, you will take your thesis signature page to the Chair of the Department to sign. Take multiple copies to sign
in case something happens to the initial one that you intended to turn into the library.

8) **Submit Department approved thesis to the University Library thesis office**

   *You are responsible for knowing and following all Library guidelines for formatting.*  [http://www.csulb.edu/library/guide/serv/](http://www.csulb.edu/library/guide/serv/)

   Tip: Use someone else’s thesis (recent graduate; 2015-16) as a template, and just type over it. The library has recently changed the formatting requirements, so use a thesis that conforms to the current style.

9) **After the Thesis Reviewer has your receipt number, a letter of “Library clearance” will be sent to you and your Thesis Advisor. The “Library clearance” must be forwarded to the Graduate Services Coordinator (Kay Belletti) in order to process the Thesis Grade Changes.** After this letter is received, the “Change of Grade Form” for thesis units will be submitted. Failure to do this will cause issues for you to officially graduate from the University and receive your degree.

10) **If you do not meet the deadlines for the turning in your Thesis to the library, you need to change your 1) graduation date and 2) sign up for GS 700 for the next term.**

   *THE KEY TO ACCOMPLISHING THESE STEPS WITH MINIMUM STRESS IS TO HAVE THE DRAFT THESIS APPROVED BY YOUR THESIS CHAIR BEFORE THE START OF THE SEMESTER IN WHICH YOU WISH GRADUATE.*
Graduate students should consider the following guidelines when preparing for their thesis defense:

• All Thesis Committee members must be present at a thesis defense.

• All Thesis Committee members and the graduate advisor must receive a copy of your thesis at least three weeks before your thesis defense date.

• Thesis Committee members are busy and may be unavailable on short notice. DO NOT put off planning your thesis defense until the week before the departmental thesis deadline. If a member of your committee is not available, you will be forced to delay graduation. Arrange your defense date well ahead of the departmental deadlines.

When a date and time has been agreed upon for your defense, schedule a room for the defense by emailing Kay Belletti with your date and time, thesis title and members of the Thesis Committee.

• The library thesis deadlines are absolute. You will not receive an extension on the thesis submission deadline for any reason.

• Secure CNSM Safety Office “Clearance” after clean-up of project materials (pick up form from Kay Belletti—Department/Safety Office Clearance Form).
THESIS PREPARATION

The thesis should be written as if for publication in a scientific journal in your research field. The thesis should have fewer than 100 pages; remember not everything that is done on a project necessarily needs to go into the publication. Be sure to refer to the thesis preparation guidelines available on the Library web site. Just referring to a recently bound thesis is not enough guidance. The "Literature Cited" section must be formatted according to departmental guidelines.

Do you remember that you took the BIOL 696 series in your first year of your program where you learned how to present information in an organized, coherent fashion? Please review your notes and efforts in that class, especially the advice on how to write captions for Figures and Tables.

THE SEVEN YEAR LIMIT

If you have not finished your program by the end of the 7th year (including official and unofficial leaves of absence) since you completed the first course on your program, your program will be Academically Disqualified and terminated from the MS degree program. You will receive a warning of this very important impending deadline during your 6th year. Talk to the Graduate Advisor or Graduate Services Coordinator if you do not understand this paragraph!

THESIS OFFICE WEB-SITE

The Library Thesis Office has a web-site that you can review for thesis information, library deadlines, etc. Go to http://www.csulb.edu/library/guide/serv/.

WARNINGS CONCERNING THE THESIS REVIEW DONE BY THE LIBRARY

The Library expects to review a perfect thesis in terms of format, punctuation, and grammatical usage. You must pay attention to the material from the Library Reviewer on format; your committee and you should have corrected the other items.

In the "LITERATURE CITED" section, YOU must make certain that every citation in the text is correct and is listed in the "LITERATURE CITED" section AND that all listed references are, in fact, cited in the text. Print out a separate Literature Cited section, and mark off references as you go through your thesis.

If at any point in the review the Graduate Advisor feels that you have not done an adequate job preparing the thesis for the final review process, the Graduate Advisor will cease reading it and return it to your Thesis Committee Chair. If this delay means that you miss the library deadline, you will have to postpone your graduation.
Department of Biological Sciences

Style Guidelines for Literature Cited for Masters Theses

In Endnote, choose Developmental Dynamics for this formatting.

This format was chosen because it is simple with few periods, bolds, and italics. After looking at many journals in many different fields of Biology, it is clear that there is no standard format.

Journal Articles


Book Chapters


Books


Web Sites

Provide the URL as completely as possible in the following format. Be sure to test that the URL works when pasted directly into Mozilla or IE. Also include date last modified, date visited (retrieved is the preferred term of the thesis office), and the author, if known. The date last modified is usually at the bottom of a web page.

http://www.arabidopsis.org/info/guidelines.jsp#locus (last modified: January 27, 2005; retrieved: March 7, 2006; author, if known, would go here)

Within the body of the text:

1 author
(Meyer, 2001)

2 authors
(Knoepfler and Eisenman, 1999)

3 or more authors
(Xong et al., 2004; http://www.arabidopsis.org/info/guidelines.jsp#locus)

Multiple citations are separated by a semicolon.
FACILITIES

Computer Facilities

Department & College Computing Facilities
There is a computer with statistical software and dedicated to large dataset analysis in HSCI 128 for Biology students. The CNSM also has a dedicated computer lab as part of the Jensen SAS Center, HSCI 162. This offers access to a number of statistical packages and printing capabilities. More information can be found online at: http://www.csulb.edu/colleges/cnsm/sas/computerlab/services.html

Campus Computing Facilities
There are two open computer labs on campus, in the Steve and Nina Horn Center, north campus, and the first floor of the Main Library. These labs are open the same hours as the campus library. Information may be found at: www.csulb.edu/library/guide/computing.html

CSULB Email
Students can set up their own CSULB “BeachMail” email account and access additional information about BeachMail via the following web page: http://www.csulb.edu/divisions/aa/academic_technology/thd/email/beachmail/

Library Facilities
In order to assist graduate students, the library has many services that can maximize your success in conducting research. Assistance with journals and other reference material is available at the Reference Desk on the first floor of the library, adjacent to the Spidell Technology Center. Students are encouraged to seek help and to inquire about the abstracts that are available for their topic of interest.

Graduate Student Offices
Desks are available for student use in HSCI 135 and MICRO 101. Use of these facilities are governed by the following rules:
1. Use of these rooms is a privilege that can be revoked at any time.
2. The rooms must be kept clean.
3. Dr. Whitcraft is the faculty member in charge of the rooms. In order to obtain keys to the room, make an appointment with Dr. Whitcraft. She will sign the key request form and keep track of who has a key. Dr. Whitcraft will also give each graduate student a key to the large file cabinet next to the dividing screen in MICRO 101. This cabinet is for students to place their valuables/food/etc. and MUST BE KEPT LOCKED AT ALL TIMES. Only students with keys may use this cabinet. Students will be charged for replacement keys to the cabinet.
4. The outside door does not automatically lock. It must be kept locked at all times. The door can be propped open for office hours.
5. The refrigerator is for food, but must be kept clean to remain in use.
6. If there is food waste in the room, it must be taken out and placed in the dumpster in the HSCI parking lot. This is especially true on Friday afternoons or the weekend. It is the responsibility of the graduate students to monitor and carry this out.
7. MICRO 101 will sometimes be used for meetings, such as graduate committee
meetings or other departmental committee meetings when no other room is available. Students may be asked to vacate the room for the duration of the meeting.

8. Students can lay claim to the small desks with drawers, but there are no keys to lock them. Try and share and get along.

**Student Services**

University Student Services are available in such areas as:

- **Academic advising through the Disabled Student Services Office:**
  
  www.csulb.edu/divisions/students/dss/

- **Personal and health counseling through:**
  
  Counseling and Psychological Services (CAPS) Office:
  
  www.csulb.edu/divisions/students/caps

- **Community Clinic for Counseling and Educational Services:**
  
  www.ced.csulb.edu/clinic

- **Financial assistance via the Office of Financial Aid:**
  
  www.csulb.edu/depts/enrollment/financial_aid/
GRADUATE ASSISTANT & TEACHING ASSISTANT POSITIONS

Information
Details regarding available Graduate Assistant (GA) or Teaching Assistant (TA) positions are posted on the Biology website:
http://www.csulb.edu/depts/biology/pages/jobs.shtml

Consult your Graduate Advisor and the CSULB course catalog for classes/labs that fit your skill set and interests.

Questions can be directed to Catherine Durham in the Biology Department office (HSCI-104) or by email: Catherine.Durham@csulb.edu

Application – See the website for updated instructions.
A complete application package for a new TA/GA must include the following completed documents*:

- Application form
- Form SC-1
- Curriculum Vitae
- Transcripts
- 3 letters of recommendation

* You should have already submitted some of these documents during your application to the graduate program, which can be also used for your TA/GA application. If not, these must be provided. Returning GA/TAs also only need to fill out the application form.

Application forms can be downloaded from the Biology or Microbiology website at:
http://web.csulb.edu/depts/biology/employment/info.htm

Form SC-1 can also be downloaded from the website:
http://www.csulb.edu/divisions/aa/personnel/forms/

The application process may be modified from this printing; be sure to check the website for most recent procedures and forms for applying for these positions.

NOTE: TA/GA positions are not guaranteed. They are limited. Further, your performance as a student and if you have TA/GA’d in the past can impact your chances of receiving a TA/GA position.
These awards are to be offered by the Dept. of Biological Sciences for graduate students in Biology and Microbiology. Awards will be given pending availability of Dept. funds. Nominations for awards will be reviewed and evaluated by the Dept. Graduate Studies Committee and the Dept. Chair. If the committee deems there are no qualified nominees, then no award may be offered in a given year. Call for nominations will occur in Spring of each academic year and will close at the end of April. The evaluation committee will make award decisions and the awards (based on quality of nominees and available funds) will be made in the spring Department Graduate student- Faculty mixer.

Outstanding Graduate Teaching Assistant

The outstanding graduate teaching assistant award is for graduate students TAing department courses that have demonstrated superior teaching performance in the classroom. Students may be nominated by faculty and staff who have direct supervision of the TA and can evaluate their performance in addition to student feedback for the courses taught.

Eligibility: To be eligible the nominee must have taught for at least 2 semesters. The student must be in good standing in their graduate program and making sufficient progress towards their thesis (e.g., completed thesis proposal, signs of significant research progress in biannual thesis updates, and graduate class performance). A student on academic probation for low GPA is ineligible for the award for at least 1-year following reinstatement. A student may only receive the award once in their graduate tenure.

Evaluation criteria: Evidence of performance excellence should be based on faculty/staff evaluation of teaching performance, student evaluations, and lab course GPA. The student must have demonstrated excellence in classroom instruction while maintaining rigor and the highest level of professionalism. Nominators must include the following information in their letters of support: examples of teaching acumen, lab GPAs, and some description about how the TA ranks among peers in comparable courses. Evidence of teaching assistant excellence may include examples where student has presented innovative methods for communicating information in the classroom, while following standards established to ensure consistency among lab sections, high quality grading and commenting on student writing assignments while maintaining appropriate rigor, and providing supplemental office hours and review sessions that may benefit all students within the lab.

Outstanding Graduate Graduate Assistant

The outstanding graduate assistant award is for graduate students hired by the Dept. to support department courses and have demonstrated superior performance in ensuring that classroom laboratories are properly prepared and that extra care is provided to make sure that every laboratory exercise runs as planned. Students may be nominated by faculty and staff who have direct supervision of students and can evaluate their performance in addition to student feedback.

Eligibility: Student must have GA’ed for at least 2 semesters and those who are full-time or part-time GAs are eligible. Students must be in good standing in their graduate program and

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making sufficient progress towards their thesis (e.g., completed thesis proposal, signs of significant research progress in biannual thesis updates, and graduate class performance). A student on academic probation for low GPA is ineligible for the award for at least 1-year following reinstatement. A student may only receive the award once in their graduate tenure.

*Evaluation criteria:* Evidence of performance excellence should be based on Faculty/staff evaluation of work performance and student feedback. The student must have demonstrated excellence in classroom and laboratory preparation (e.g., quality of laboratory preparation, success of laboratory exercises based on quality of preparation and support, timeliness and quality of laboratory set-up, breakdown, and cleanliness, and facilitation of laboratory instruction). Nominators must include the following information in their letters of support: examples of quality of technical support, feedback from TAs and students on quality of laboratory setups and functionality, and some description about how the GA ranks among peers in comparable courses.

**Outstanding Graduate Researcher**

The outstanding graduate researcher award is for graduate students in the Dept. of Biological Sciences who have demonstrated exceptional performance in research related activities. Students may be nominated by faculty who have direct supervision of students and can evaluate their performance relative to other graduate students in the program and within their field.

*Eligibility:* Student must be advanced to candidacy and still matriculated in order to be eligible. Student must be in good standing in their graduate program and making sufficient progress towards their thesis (e.g., completed thesis proposal, signs of significant research progress in biannual thesis updates, and graduate class performance). A student on academic probation for low GPA is ineligible for the award for at least 1-year following reinstatement. A student may only receive the award once in their graduate tenure.

*Evaluation criteria:* Evidence of excellence in research should be based on faculty/staff evaluation of work performance, external awards, and quality of research products. The student must have demonstrated excellence in research (e.g., professional society best student paper awards, high quality peer-reviewed publications, competitive scholarships and fellowships, competitive external research grants). Nominators must include the following information in their letters of support: examples of research excellence and quality, how these achievements stand out within the field, and some description about how the student researcher ranks among peers in comparable programs at other Universities.