Master of Science in Biology

Graduate Student Guide

2017-2018

California State University, Bakersfield
Department of Biology

CSUB Master of Science in Biology Program
Graduate Student Guide
2017-2018

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1. INTRODUCTION

Greetings prospective and entering graduate students!

The Biology graduate faculty at California State University, Bakersfield (CSUB) developed this guide to introduce our Master of Science program in Biology. If you are considering CSUB as a possible choice for graduate school, this guide will give you some insight into our goals, curriculum, and strengths. If you are already admitted to our program, this guide will inform you of our policies, procedures, and requirements. We hope that this will be a useful tool toward determining and helping you to achieve your graduate school and professional objectives.

Paul Smith, Ph.D.
Professor and Chair

Anna L. Jacobsen, Ph.D.
Associate Professor and Biology Graduate Director

2. PROGRAM DESCRIPTION

Department Chair: Dr. Paul Smith
Program Director: Dr. Anna Jacobsen
Program Office: Science Building I, 114
Program Office Telephone: (661) 654-3089
Program Office email: vmayorga@csub.edu
Website: www.csub.edu/Biology
Graduate Faculty: I. Francis, D. Germano, J. Gillard, A. Jacobsen, K. Keller, C. Kloock, A. Lauer, T. McBride, R.B. Pratt, P. Smith, A. Stokes, K. Szick

The Department of Biology offers a graduate program leading to a Master of Science in Biology degree. The Master of Science with a thesis option is intended to prepare students for professional positions in state and federal agencies, the environmental consulting industry, and for further graduate studies. The Master of Science with a non-thesis option is intended for working professionals, especially public school teachers, and emphasizes course work. A broad range of faculty research interests, easy access to diverse biological environments, and a range of modern research facilities permit the student to select from a broad spectrum of research topics.

Faculty interests include animal behavior, community ecology, comparative morphology, conservation biology, ecology, field biology, physiology, plant anatomy, plant ecophysiology, plant pathology, micro- and molecular biology, molecular evolution, and systematics.

Some of the special features of our program include:

- Close, individual guidance by highly skilled faculty
- Incorporation of science pedagogy and teaching experience
- Late afternoon (after 3 PM) and evening course offerings, making the program accessible for persons who work during the day
- Close partnerships with the private and public sector. With appropriate approval, students will be able to conduct their thesis research off campus in a partnership with a company or governmental agency.
- Well-equipped, modern laboratory facilities and access to numerous field sites in the area

Laboratory and/or field research is an integral component of the program, which emphasizes a "hands-on" approach with close faculty mentoring. Research experience also enables students to hone investigative skills relating to experimental design, implementation, data analysis, and interpretation. On-campus research facilities include an ~8 ha Environmental Studies Area and two modern greenhouses. In addition, faculty research labs within the department contain state-of-the-art research facilities for physiology, molecular, genetics, biotechnology, histology/anatomy, and morphology research. This includes several growth chambers, an ultracentrifuge, digital gel documentation systems, several -80^{o}C freezers, several thermal cyclers, a 2D protein analyzer, refrigerators, access to a shared scanning electron microscope (operated through the Department of Geology), a high resolution CAT scanner, and several research-grade light microscopes.

3. GRADUATE PROGRAM PERSONNEL

ASSOCIATE VICE PRESIDENT FOR ACADEMIC PROGRAMS ─ oversees all CSUB graduate programs; approves or disallows petitions to change or to grant waivers to the University and Department Graduate Degree Requirements as published in the CSUB Catalog.

DEAN OF NATURAL SCIENCES, MATHEMATICS AND ENGINEERING ─ provides input to faculty and students concerning the degree program.

DEPARTMENT OF BIOLOGY GRADUATE DIRECTOR ─ reviews admissions files and notifies Admissions and Records of departmental admissions decisions, advises incoming students, advises non-thesis students, administers non-thesis exams, coordinates graduate activities of the Department of Biology, and serves as the Biology Department liaison to other graduate programs and the Graduate Student Center.

DEPARTMENT OF BIOLOGY GRADUATE COMMITTEE – three-person committee (including Graduate Committee Chair) selected by the Department of Biology that oversees that program, reviews admissions files, and reviews petitions (e.g. admissions petitions or to extend the 5 yr program time to completion limit) submitted to the MS Biology program.

GRADUATE COMMITTEE CHAIR ─ a tenured or tenure-track faculty member from within the CSUB Department of Biology who oversees the acceptance, program establishment, progress, and completion processes as the advisor to a thesis student; resolves problems between thesis students and faculty and informs thesis students of departmental regulations; serves as final departmental quality control on thesis projects.

GRADUATE COMMITTEE ─ three-person committee (including Graduate Committee Chair) selected by the thesis graduate student that oversees progress and completion processes. This committee must contain at least two tenured or tenure-track faculty members from within the CSUB Department of Biology. One outside member of the committee is permitted as long as they are an expert within the student's field of research and have attained a minimum of a BS degree within their field of expertise.

GRADUATE FACULTY IN THE DEPARTMENT OF BIOLOGY*

NAME	INTERESTS
Dr. Isolde Francis	Phytobateriology
Dr. David J. Germano	Vertebrate Biology, Ecology, Conservation Biology
Dr. Jeroen Gillard	Microbial Physiology and Genomics
Dr. Anna L. Jacobsen	Plant Structure-Function
Dr. Kane Keller	Community Ecology, Evolutionary Ecology
Dr. Carl T. Kloock	Science Education, Behavioral Ecology
Dr. Antje Lauer	Microbiology, Marine Biology
Dr. Todd McBride	Human/Muscle Physiology
Dr. R. Brandon Pratt	Plant Physiological Ecology
Dr. Paul T. Smith	Entomology, Systematics & Evolution, Genetics
Dr. Amber Stokes	Chemical Ecology & Animal Physiology
Dr. Kathy Szick	Molecular and Cell Biology

*see the Department of Biology website for additional information about faculty and their research interests.

4. APPLICATION PROCESS AND PROGRAM REQUIREMENTS

Application for the Master of Science in Biology

To apply to the Master of Science Degree in Biology program, please visit Cal State Apply at https://www2.calstate.edu/apply to initiate the application process. This new application system launched in Fall 2017 for applications for the Spring 2018 semester and beyond.

While we transition to this new application system, you may need to submit a paper application instead of the electronic one. Up-to-date information on the application process is available through the CSUB Graduate Student Center (http://www.csub.edu/graduatestudentcenter/).

In addition to the online application form, prospective students must provide the following:

1. Official transcripts from all colleges and universities attended.
   All applicants must send one (1) official transcript to the Office of Admissions & Records from each college/university attended. All transcripts must be received by our office in the original, sealed envelope from the issuing school to be considered official. (Exception: CSU, Bakersfield graduates do not have to provide transcripts. However, if you attended other institutions since attending CSUB you must provide an official transcript from each of those institutions.)

   Admissions & Records-Graduate Programs
   California State University, Bakersfield
   9001 Stockdale Highway SA47
   Bakersfield, CA. 93311-1022
2. Official score reports.
   All applicants must submit official scores for the GRE General Test.
   International students must also submit TOEFL scores.
4. Three (3) letters of recommendation from persons familiar with your performance in the classroom and potential for independent research. These letters are handled as confidential documents. Letters may be submitted either:

   a) electronically to the Biology Graduate Director (Dr. Anna Jacobsen, ajacobsen@csub.edu), or

   b) mailed to:

   Dr. Anna Jacobsen
   Biology Graduate Program Director
   California State University, Bakersfield
   9001 Stockdale Highway SCI61
   Bakersfield, CA. 93311-1022

Only fully completed applications will be reviewed.

Application target dates:
Fall Semester: Target date of March 15, late complete applications reviewed until July 1.
Spring Semester: Target date of September 15, late complete applications reviewed until December 1.

Applicants are encouraged to meet target application dates. Positions within the program may be limited and later applicants may be declined admission if open spots have already been filled. This is particularly important for potential thesis-track applicants, because lab positions are limited. Students interested in pursuing the thesis-track are encouraged to contact individual faculty members to find out if they have positions available for graduate students within their lab.

If you have any questions, please contact Dr. Jacobsen, the Biology Graduate Director (email: ajacobsen@csub.edu; phone: (661) 654-2572).

5. ADMISSIONS REQUIREMENTS FOR THE MASTER OF SCIENCE IN BIOLOGY

1. A bachelor's degree in biological or related sciences from an accredited 4-year college or university.

2. An undergraduate GPA of at least 3.0 in the last 90 quarter or 60 semester units of course work.

3. Graduate Records Examination (GRE) scores that are at the 50th percentile or greater for both the verbal and quantitative sections.

4. Student has taken and passed with scores of a C or greater the following courses or their equivalent:

BIOL 301/3120 Research Design and Analysis (i.e., Biostatistics)
BIOL 304/3010 General Genetics
BIOL 305/3020 General Physiology
BIOL 306/3110 General Ecology
BIOL 470/4100 Evolution

5. Formal acceptance into the program following review of all completed application materials by the Graduate Program faculty within the Department of Biology.

Students interested in pursuing the thesis-track are encouraged to contact individual faculty members to learn more about their research programs and/or to find out if they are accepting graduate students. Students will not be accepted directly into the thesis-track without having first obtained permission to join a laboratory from the requested thesis-advisor.

6. GRADUATE STUDENT CLASSIFICATIONS

Classified Graduate Student - Acceptance as a Classified Graduate Student indicates that space has been made available for the student within the program and that the student has met the minimum preparation requirements to commence the program as listed below.

1. An acceptable baccalaureate degree from an accredited institution.
2. An undergraduate GPA of at least 3.0 in the last 90 quarter/60 semester units of course work and Graduate Records Examination scores of 50th percentile or greater (verbal and quantitative).
3. All course requirements met.
4. Acceptance into an academic advising relationship with a departmental faculty member (thesis-option).
5. Acceptance will only be granted if space is available for the student in the program.

Conditionally Classified Graduate Status - Students who fail to meet entirely one or more of the criteria for admission as a Classified Graduate Student may, at the discretion of the Biology Graduate Admissions Committee, be admitted as a Conditionally Classified Graduate Student. These conditions may include, but are not limited to, specific prerequisite courses, GPA, course grades, etc. These

conditions will be included in the student's admission letter. Any course deficiencies must be remedied within the student's first semester within the program. Conditionally classified students must enroll in 10 units of graduate applicable coursework during their first term and must earn scores of a B or higher in all of these course units. Once the student has "remedied" all conditions specified by the Biology Graduate Admissions Committee they may apply for consideration for reclassification. If the petition is accepted, the student classification will be changed to Classified Graduate Student. The Application for Admission to Classified Status is included as an appendix to this document.

Students admitted as a Conditionally Classified Graduate Student are not allowed to enroll in any 600- (6000-) level courses. They are restricted to 500- (5000-) and 400- (4000-) level courses for which they have met prerequisites.

Admission to Classified Status must be accomplished within one semester after acceptance as a Conditionally Classified Graduate Student. No more than 12 units may be taken for graduate credit until all prerequisites have been satisfied.

Advancement to Candidate Status - Acceptance as a candidate indicates that the student has completed at least 20 semester units within the approved Plan of Study and that there is a reasonable expectation that the student will complete all remaining requirements within one year. Classified Graduate Students will be advanced to Candidate Status when they have met the following criteria:

1. Completion of all requirements for Classified Status.
2. Completion of at least 20 semester units of courses applicable to the Master of Science Degree in Biology with a grade of "B-" or better and graduate GPA of at least 3.0.
3. Submitted application for advancement to candidacy that has been approved by the Biology Graduate Director. (Application document is contained as an appendix to this document).

Students in the thesis track must also:

4. Obtain approval of the student's Master's thesis research topic by the student's Departmental of Biology Graduate Thesis Chair and Thesis Committee. This is demonstrated through the successful completion of a thesis proposal and a thesis proposal defense.
5. Obtain certification by the student's thesis advisor that there is a reasonable expectation that the student will satisfactorily complete the Master's thesis within one year.

Admission to Candidate Status must be attained within two calendar years after acceptance as a Classified Graduate Student.

Progress through the program - All requirements and graduation are to be completed within five calendar years after initial acceptance as either a Classified or a Conditionally Classified Graduate Student. The five-year time limit can be extended by petition to and approval from the Departmental Graduate Committee.

Completion of all requirements for the Master of Science in Biology requires satisfactory completion of all courses in an approved Plan of Study and satisfactory completion of an exit examination (non-thesis) or thesis, including oral examination and any revisions required by the Thesis Committee or Departmental Graduate Committee (thesis), and maintaining a 3.0 GPA. Additionally, students must have received at least a C in a course in order for the course to count toward their required graduate courses and students must have taken at least 60% of their course units at the 500-\5000- or 600-\6000- level.

7. COURSE REQUIREMENTS FOR THE MASTER OF SCIENCE IN BIOLOGY

CSUB transitioned to a semester-based academic calendar in Fall 2016. Students who entered the MS Biology program prior to Fall 2016 were admitted under the quarter-based program requirements. They may choose to graduate under either the quarter-based of the semester-based requirements if they will be graduating in Fall 2016 or later. Students admitted in Fall 2016 or later will be required to meet the requirements listed for the semester-based program. Concentration outlines showing the quarter and semester-based program equivalences are included at the end of this document.

All graduate students must pass the Graduation Writing Assessment Requirement (GWAR) with a score of 8 or above. It is recommended that students take this writing proficiency examination in the first year of their graduate studies.

Thesis Track (30 semester units)
BIOL 5100 Advanced Writing and Experimental Design (4)
BIOL 5010 Current Topics in Biology (6)
BIOL 6010 Seminar in Ecology and Evolutionary Biology (2)
BIOL 6911 Thesis (5)
BIOL 6921 Thesis Defense (1)
*ELECTIVES (4000-, 5000-, or 6000-level courses) (12 units)

Non-thesis Track (33 semester units)
BIOL 5100 Advanced Writing and Experimental Design (4)
BIOL 5010 Current Topics in Biology (6)
BIOL 5710 Advanced Topics in Biology (4)
BIOL 6010 Seminar in Ecology and Evolutionary Biology (2)
BIOL 6901 Non-thesis examination (1)
*ELECTIVES (4000-, 5000-, or 6000-level courses) (16 units; no more than 12 units at the 4000-level)

ELECTIVE COURSES*
BIOL 4200 Medical Microbiology
BIOL 4310 Conservation Biology
BIOL 4320 Advanced Ecology
BIOL 4330 Behavioral Ecology
BIOL 4340 Chemical Ecology
BIOL 4350 Environmental Microbiology
BIOL 4410 Entomology
BIOL 4420 Plant Diversity
BIOL 4430 Vertebrate Diversity
BIOL 4440 Molecular Genetics
BIOL 4450 Bioinformatics
BIOL 4460 Evolutionary Genetics
BIOL 4510 Comparative Vertebrate Structure and Function

BIOL 4520 Physiological Measurements
BIOL 4530 Terrestrial Ecosystem Ecology
BIOL 4540 Physiological Plant Ecology
BIOL 4550 Plant Structure and Function
BIOL 4560 Plant Pathology
BIOL 4700 Special Topics in Biology

* Selection of elective courses must be approved by the Biology Graduate Director (non-thesis option) or Thesis Committee (thesis option). If approved prior to course registration, elective courses may include appropriate graduate-level courses offered by departments other than Biology. One elective course may be substituted for a 4000-, 5000-, or 6000-level CHEM, GEOL, MATH, PEAK, or PHYS course, with advisor approval.

**Students within the graduate program may need to be signed-in to elective courses by the course instructor.

COURSE DESCRIPTIONS (GRADUATE COURSES)

BIOL 5010 Current Topics in Biology (2)
Current topics of special interest to graduate students in Biology. Topics and content will vary as announced but will include contemporary or interdisciplinary areas of interest. Two hours lecture. Repeatable. A maximum of 16 units allowed. Prerequisites: Graduate standing and an upper division course appropriate to the topic.

BIOL 5100 Advanced Experimental Design and Analysis (4)
Course covers how to effectively communicate biological science to the scientific community, effective methodology in experimental design, proposal writing, including writing specific aims and creating a budget. Two hours lecture, one hour discussion, and three hours laboratory. Prerequisites: Graduate standing.

BIOL 5710 Advanced Topics in Biology (4)
Laboratory or field based graduate level biological topics in a specialized area of contemporary biology, such as genetics, ecology, microbiology, physiology, behavioral biology, systematics, or molecular biology. Topics will be announced. May be repeated for credit as topics change. Three hours lecture and three hours laboratory. Prerequisites: Graduate standing or consent of instructor and an upper division course appropriate to the topic. Lab fee required.

BIOL 5901 Research (1-3)
Independent research: the student formulates a problem and research design in consultation with the faculty, conducts the investigation, compiles and analyzes the data, and presents the findings in written form. Repeatable. Although repeatable, a maximum of 5 units may be applied towards the Master's degree. Prerequisites: Graduate standing and consent of the advisor.

BIOL 5911 Graduate Practicum in the Teaching of Biology (2)
Theory and practice in teaching biology at the undergraduate level. Regular meetings with the faculty sponsor and supervised experience in course design, lecturing, tutoring, laboratory preparation and delivery, administering and scoring examinations, and leading classroom discussions. One-hour lecture and three hours laboratory. Prerequisites: Graduate standing.

BIOL 6010 Seminar in Biology (2)
Student presentation and discussion of reviews and reports focusing on current literature and scientific research in ecology and evolutionary biology. Two hours discussion. Prerequisites: Approved petition for advancement to candidacy.

BIOL 6901 Non-Thesis Examination (1)
Comprehensive examination of graduate-level breadth administered by the Departmental Graduate Committee. Prerequisites: Approved petition for advancement to candidacy.

BIOL 6911 Thesis (1-3)
Laboratory, field investigation, or a combination of both investigating a research problem. Repeatable. Although repeatable, a maximum of 5 units may be applied towards the Master's degree. Prerequisites: Approved petition for advancement to candidacy.

BIOL 6921 Thesis Defense (1)
Preparation, completion (including final submission to the library), and oral defense of a written thesis approved by the Thesis Committee and the Departmental Graduate Committee. Prerequisites: Approved petition for advancement to candidacy.

COURSE DESCRIPTIONS (ELECTIVE COURSES)

BIOL 4200 Medical Microbiology (4)
Isolation and identification procedures and the clinical significance of medically important microorganisms (mainly bacteria). Key points of these organisms, epidemiology and pathogenic mechanisms will be discussed. Skills concerning the isolation and identification of medically important bacteria are emphasized in laboratory. Three hours lecture and three hours laboratory. Lab fee required. Prerequisite: BIOL 3120 and 3410 or for the BA in Human Biological Sciences BIOL 2230 and 3220.

BIOL 4310 Conservation Biology (4)
Study of problems related to biological conservation, including endangered species issues, environmental laws, and mitigation solutions required by regulations. Includes site visits to conservation areas, collection of biological data, preparation of assessment reports, and study environmental impact reports. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3110.

BIOL 4320 Advanced Ecology (4)
Advanced study of ecology. Emphasis includes evolutionary perspectives of physical and biological environments, population dynamics, and ecosystem stability. Laboratory emphasis will be placed on analytical methods used in the field. Laboratory includes weekend field trips. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3110. Field trip fee required.

BIOL 4330 Behavioral Ecology (4)
Animal behavior in an evolutionary and ecological context. Topics include: The comparative method, foraging and decision-making theory, anti-predator behavior, animal communication, social behaviors and systems, competition, cooperation, altruism, deceit, honesty, mating systems, parent-offspring conflict, kin selection. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3110.

BIOL 4340 Chemical Ecology (4)
This course focuses on the ecological interactions of organisms involving chemical communication. Specifically, students will learn about chemical involvement in inter/intraspecific communication in regards to feeding, pollination, host-plant selection, microbial interactions, defense, mate finding, and social communication. Three hours lecture and three hours laboratory. Prerequisite: BIOL 3120 and 3110.

BIOL 4350 Environmental Microbiology (4)
This course focuses on the study of microbial structure and function. In particular, students will learn about fermentation procedures, bioremediation with the help of microbes, composting, and detection of antibiotic producing microbes, use of microbes to supply fresh drinking water, safe disposal of sewage, and how microbes are used in food, beer and wine production. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120, 3110, and 3410 or for the BA in Human Biological Sciences BIOL 2230, 3210, and 3220.

BIOL 4410 Entomology (4)
Comparative study of aquatic and terrestrial insects with emphasis placed on terrestrial insect diversity. Laboratory focuses on comparative morphology, phylogeny, classification, and student projects. Three hours lecture and six hours laboratory. Prerequisites: BIOL 3120. Lab fee required.

BIOL 4420 Plant Diversity (4)
Phylogeny and classification of vascular plants with emphasis on field recognition and identification of important plant families and genera characterizing the major floristic regions of California. Lectures review taxonomic diversity, evolutionary relationships, and eco-geographic patterns of western floras. Laboratory includes weekend field trips for which a fee is required. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3110.

BIOL 4430 Vertebrate Diversity (4)
Diversity, evolution, and biology of fish, amphibians, reptiles (including birds), and mammals, with special emphasis on the biology and identification of local species. Three hours lecture and three hours laboratory. Prerequisite: BIOL 3120 and 3110.

BIOL 4440 Molecular Genetics (4)
Advanced concepts of molecular genetics, including DNA damage and repair, homologous recombination, transposition, alternative splicing and posttranscriptional regulation of gene expression. Additional topics that contribute to an understanding of gene expression will include recent advances in genomics, proteomics and bioinformatics. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3010 or BIOL 3010 and 3220.

BIOL 4450 Bioinformatics (4)
Introduction to basic concepts, methods and tools used in bioinformatics and their application to biological sequence and structure data analysis. Topics include (but not limited to) bioinformatics databases, sequence and structure alignment, motif and domain finding, gene, RNA and protein structure prediction, protein-protein interaction, microarray technology and data analysis, genome annotation and comparative genomics. Three hours lecture three hours laboratory. Prerequisites: BIOL 3201 and 3010.

BIOL 4460 Evolutionary Genetics (4)
Contributions of molecular genetics to the understanding of evolution. Emphasis is placed on the processes of mutation, selection, and random genetic events as they affect the genetic architecture of natural populations and the process of speciation. Topics include quantitative inheritance, population genetics, phylogenetics, conservation genetics, and bioinformatics. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3010.

BIOL 4510 Comparative Vertebrate Structure (4)
Comparative study of both structure and function in vertebrate systems. This course will cover skeletal, muscular, circulatory, respiratory, digestive, excretory, nervous, and sensory systems in an evolutionary and adaptive context. Three hours lecture and three hours laboratory. Prerequisite: BIOL 3120 and 3020. Lab fee required.

BIOL 4520 Physiological Measurements (4)
Physiological measurement techniques focusing on data collection and analysis of selected vertebrate organ systems. Discussion topics include electrical properties of nerve, cardiac and skeletal muscle tissues, pulmonary and metabolic function, and sensory physiology. Emphasis will be placed on understanding the mechanisms of how each system works and the benefits and limitations of the measurement techniques currently available. Three hours lecture and three hours laboratory. Prerequisites: BIOL 2220 or 3550, BIOL 3120 and 3020. Lab fee required.

BIOL 4530 Terrestrial Ecosystem Ecology (4)
This course presents organisms and the physical characteristics of the environment as an interacting and integrated system. Topics covered are the climate and geologic factors that affect ecosystems. The central processes that govern ecosystem function are covered including water, carbon, and nutrient cycles. An emphasis will be placed on how ecosystems are perturbed by environmental changes. Three hours lecture and three hours laboratory. Prerequisite: BIOL 3120 and 3110. Lab fee required.

BIOL 4540 Physiological Plant Ecology (4)
The physiological basis of growth, reproduction, survival, abundance, and geographical distribution of plants. The ecological context of these processes will be examined by considering how plants are affected by interactions with the physical, chemical, and living components of their environment. Topics include the adaptive significance and evolutionary origins of plant functional traits. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120, 3020, and 3110. Lab fee required.

BIOL 4550 Plant Structure and Function (4)
Anatomy of plants as related to plant function. Topics include development and reproduction, the capture of light and nutrients, transport of water and solutes, storage of water and carbohydrates, and biomechanics. The evolutionary history and ecological context of these traits will also be examined as well as the use of plant structure in predicting plant function. Three hours lecture and three hours laboratory. Prerequisites: BIOL 3120 and 3020.

BIOL 4560 Plant Pathology (4)
Introduction to the main groups of pathogens that cause plant disease (bacteria, fungi, oomycetes, nematodes, viruses), how they are spread, and how they affect plant health, growth and development. Additional topics include: plant disease diagnosis, plant disease control, factors influencing disease development, and examples of how plant pathogens have influenced human history and culture. 150 minutes lecture/150 minutes laboratory. Prerequisite: BIOL 3120 and 3410.

8. ADDITIONAL ACADEMIC INFORMATION

MENTORING

It is our belief that the quality of a student's graduate experience is, in large measure, a reflection of mentoring. Too often, especially in graduate programs that have large faculty-student ratios, students do not receive adequate faculty supervision. In our program, each student is carefully mentored throughout his/her tenure at CSUB. No student will be without an adviser at any time in his/her course of study. Our aim is to include our graduate students in the "every-day life" of the department: offering teaching opportunities, inviting participation in faculty research programs, and welcoming involvement in departmental social events.

Upon acceptance into our program, a student will be advised by a faculty advisor/committee chair (thesis option) or the Biology Graduate Director will serve as advisor for students in the non-thesis option. The thesis student should consult with the Committee Chair to select two other committee members and complete a COMMITTEE MEMBERSHIP & CONCENTRATION OUTLINE form.

ACADEMIC COURSE LOAD

Eight units of graduate course work per academic term are considered the minimum full-time graduate unit load. Typical enrollment is 8-12 units per term.

CONTINUED ENROLLMENT

Graduate students must maintain continuous enrollment in the graduate program. An unauthorized leave of absence of more than 2 consecutive semesters (i.e. the student is not enrolled in any courses or continuing enrollment units) requires that a student reapply to the biology graduate program and reapply to the university (including payment of the non-refundable application fee). Graduate courses that a student completed prior to their leave of absence from the program will be reassessed and will not be automatically accepted for credit in the graduate program upon reapplication. Applicants will be required to meet all program and university admissions requirements at the time of reapplication and, if accepted, will be accepted under the catalog and graduate handbook of their renewed admissions year.

CONCENTRATION OUTLINE

Each thesis graduate student must file a signed COMMITTEE MEMBERSHIP & CONCENTRATION OUTLINE form that will detail the approved courses for the Master of Science degree. The COMMITTEE MEMBERSHIP & CONCENTRATION OUTLINE form must be completed before the student advances to candidacy. In addition, advancement to candidacy requires the preparation of a thesis research proposal. This proposal must be defended to the thesis committee and receive committee approval prior to the initiation of thesis research.

The requirements for the Master's Degree in Biology (thesis) includes 30 semester units of committee approved graduate work, **at least 60% of which must be at the 5000/6000-level**. Additional courses (prerequisites and/or deficiencies) of study may be required, but are not counted as part of the coursework that applies towards this requirement. The program of study should be developed in consultation with the chair of the student's graduate committee with a focus on gaining depth of knowledge in a particular sub-discipline of biological science. The

formal program of study must be submitted for approval to the student's graduate committee before the end of the second semester after admission to the program.

The requirements for the Master's Degree in Biology (non-thesis) includes 33 semester units of Biology Graduate Director approved graduate work, at least 60% of which must be at the 5000/6000-level. Additional courses (prerequisites and/or deficiencies) of study may be required, but are not counted as part of these units of approved course work. The formal program of study must be submitted for approval to the Biology Graduate Director before the end of the second semester after admission to the program. These forms are included at the end of this document.

ACADEMIC CONTINUATION

Graduate students must maintain an overall GPA of 3.0 and earn at least a C (2.0) in all courses, except those graded credit/no credit. Students who are conditionally classified because of GPA deficiencies may not earn less than a B (3.0) in the courses on their approved CONCENTRATION OUTLINE. Any student whose overall GPA falls below 3.0 for a term, or who receives more than three grades of C (2.0) or lower in any graduate course, will be placed on academic probation and/or dismissed from the program.

NON-THESIS/THESIS PROGRAM CHANGE

Students may wish to change their track within the MS Biology program during their tenure as a student. A student must obtain the written consent of their current or future thesis advisor as well as the Biology Graduate Director to switch their status within the program between non-thesis and thesis tracks (see appendix for the Thesis/Non-thesis Change Form). Students must also submit a Request to Change Program/Plan for to the Office of Admissions and Records (first page only):
http://www.csub.edu/admissions/_files/requesttochangeprogramplanpostbaccalaureate.pdf

NON-THESIS COMPREHENSIVE EXAM

A comprehensive written examination will be the culminating experience for each student in the Master's program Non-thesis track. The exam will be offered once each semester: at 9 AM on the first Friday of November and 9 AM on the first Friday of March (the exam date may change depending on annual variations in holiday schedules, but any deviations from the above posted schedule would be announced within the first three weeks of each semester). It is the responsibility of the student to make sure that they are available to take the exam during the term they intend to graduate. It is the student's responsibility to sign-up with the Biology Graduate Director to take the exam on the scheduled exam date by enrolling in BIOL 6901 in the term they intend to take the exam. Some questions are released ahead of time to students enrolled in this course, so that they can work to prepare answers during the term prior to the scheduled exam date. These questions may be obtained from the Biology Graduate Director.

THESIS

Research leading to the thesis will be the culminating experience for each student in the Master's program Thesis track. The thesis will be a substantial product of original empirical research carried out under the close supervision of the student's Committee Chair and two additional committee members.

It is expected that the student and his/her committee chair will work closely together to identify elective courses and possible research topics for a thesis. Together the chair and student

will select and ask two additional members to serve on the graduate committee. A minimum of two Committee members must be tenured/tenure-track faculty members in the Department of Biology. Upon approval of the Committee Chair, a faculty member from another department or a professional member from the community or a faculty member from another university with pertinent background to the research topic and the appropriate terminal degree (Ph.D.) may sit on the committee as the third member. A student must obtain the written consent of each member who will serve on the thesis committee (see Appendix for COMMITTEE MEMBERSHIP & CONCENTRATION OUTLINE form).

In some cases a student will rely primarily on the Committee Chair for thesis development; in other cases the committee members will be consulted more substantively. It is the student's responsibility to keep all committee members informed of his/her progress and to ask their Committee Chair for guidance in determining the appropriate level of involvement for the committee members. Students are encouraged to meet with their committee at least twice per year to discuss progress.

Students should be enrolled in BIOL 6911 (Thesis) while work toward the thesis is being conducted, analyzed, and written. Thesis students must be enrolled in BIOL 6921 during the semester in which their thesis is defended (including a publically announced and presented thesis talk as well as an oral defense of the thesis with their graduate committee) and approved. If the student does not complete their thesis during this semester, they will be assigned a grade of NC (no credit) and must re-enroll in BIOL 691/6921 in the semester in which they defend their thesis. Credit for BIOL 691/6921 will only be received once the approved thesis has been submitted to the library.

Information regarding thesis guidelines and submission procedure are maintained by CSUB's Walter Stiern Library and may be accessed at:
http://www.csub.edu/academicprograms/_files/masters%20thesis%20or%20projects%20general%20information%20and%20guidelines.pdf

COMMENCEMENT

Students will be allowed to participate in the graduation ceremony if, and only if, the student's thesis has been defended and approved by their graduate committee or they have successfully passed the non-thesis comprehensive exam. **Students should therefore not make plans for participating in the graduation ceremony until it becomes evident that the thesis/comprehensive examination will indeed be completed and passed on time!**

In addition, students are reminded that they need to apply to the University for Graduation. More information on university graduation application deadlines can be found at: http://www.csub.edu/admissionsandaid/graduation/. Note: the application for graduation is due to the university well before the expected semester of graduation. Students should make sure that they are checking these deadlines and that they submit their application into the university on time.

9. FINANCIAL ASSISTANCE

Graduate Equity Fellowship: Graduate Equity Fellowships are renewable for a maximum of six academic terms, pending available monies and satisfactory performance in one's graduate program. The fellowships are based upon financial aid eligibility. Fellows are expected to be full-time graduate students and to complete their degree requirements within the one- or two-year time frame of their respective Master's program. Applicants are also encouraged to pursue advanced degrees (PhD, etc.) upon completion of study at CSUB, an issue worth consideration in the development of the Personal Statement. Fellows may be expected to participate in some special activities during the academic year. Although renewable, students must reapply for the fellowship in spring term for the next academic year.

Graduate Student Tuition Fee Waiver (GSTFW) Program: A minimal number of graduate student tuition fee waivers are available each year. The goals of the GSTFW program include 1) increasing the number of CSUB graduate students who would otherwise not attend without financial assistance; 2) to provide student assistant support to graduate programs that have demonstrated notable enrollment growth; and, 3) to assist graduate programs to recruit students from underrepresented groups. Nominations by faculty are requested toward the end of spring semester.

Graduate Assumption Program of Loans for Education (Graduate APLE): Once a Graduate APLE participant has obtained a graduate degree, the California Student Aid Commission (Commission) may assume a total of $6000 in outstanding educational loans in return for a cumulative total of three consecutive full-time years of eligible teaching service at one or more colleges or universities in California. Check the Financial Aid Home Page for additional information and programs.

Graduate Teaching Assistantships: A limited number of paid teaching assistantships are available. See the biology website for application forms.

Graduate Research Assistantships: Inquire with thesis advisor regarding availability.

Students are encouraged to check with the office of Financial Aid & Scholarships as well as the Graduate Student Center for additional information on programs, scholarships, and fellowships.

10. TIMELINE AND GRADUATE CHECKLIST

Listed below are some of the steps that need to be completed during each year of your tenure in the MS Biology program. Additional information about some of these steps is included below the checklist for each year.

Year 1

First Semester

_____ 1) If required, pass the writing proficiency examination (**GWAR**). All graduate students who apply for a master's degree must demonstrate upper-division writing competency. If the student has completed this requirement during his/her baccalaureate program with a score/grade that meets the minimal requirements specified by the graduate program, then certification of the upper-division writing competency will be accepted. Students who have not yet completed this requirement must register for and pass the Graduation Writing Assessment Requirement (GWAR) with a score of 8 or above. The exam is administered two times each academic year.

_____ 2) Complete any course deficiencies if admission was granted as a conditionally classified graduate student (or complete any other requirements needed to in order to be admitted as a fully classified student). Deficiency courses do not count toward completion of units for the MS Biology program. Admission to Classified Status must be accomplished within one semester after acceptance as a Conditionally Classified Graduate Student. No more than 12 semester units may be taken for graduate credit until all deficiencies have been satisfied. Once deficiencies have been remedied, students should submit an APPLICATION FOR ADMISSION TO CLASSIFIED STATUS to the Biology Graduate Director.

_____ 3) Establish your formal Program of Study by completing a CONCENTRATION OUTLINE form in consultation with the Chair of your Graduate Committee (thesis) or with the Biology Graduate Director (non-thesis). Most courses that you take within the graduate program but before you establish a formal Program of Study (in your Concentration Outline) may be put on this program and count toward your degree completion credits.

Non-thesis students: meet with the Biology Graduate Director to determine a CONCENTRATION OUTLINE.

Thesis students: Establish a graduate committee and complete and file a COMMITTEE MEMBERSHIP and CONCENTRATION OUTLINE form.

Second Semester

_____ 1) Thesis students should meet with their Graduate Committee and present a thesis research proposal (orally and in writing) by the end of their first year. SEE THE THESIS PROPOSAL GUIDE available on the Department of Biology webpage. Students should work

with their Graduate Committee Chair to develop an approved draft of the thesis project which will then be circulated among the other members of the Committee for comments. Students must complete any and all revisions suggested by the Committee before being accepted as a candidate. A copy of the committee-approved thesis proposal must be filed with the Biology Graduate Director and must be submitted by the student at the time that they are applying for advancement to candidacy.

Year 2

First Semester

_____ 1) File for advancement to Candidacy by completing the APPLICATION FOR ADVANCEMENT TO CANDIDACY. Admission to candidate status must be attained within two calendar years after acceptance as a Classified Graduate Student and when there is a reasonable expectation that a student will satisfactorily complete the MS Biology program within one year.

Non-thesis: Non-thesis students may file for advancement to candidacy after they have completed 20 semester units of graduate course work as outlined in their approved Program of Study with a grade of "B-" or better in all courses. They must have Classified status in the program and must have a GPA of at least 3.0. Applications for Advancement to Candidacy for Non-thesis students are submitted to the Biology Graduate Director for evaluation and processing.

Thesis: Thesis students may file for advancement to candidacy after they have completed 20 units of graduate course work as outlined in their approved Program of Study with a grade of "B-" or better in all courses. They must have Classified status in the program and must have a GPA of at least 3.0. Additionally, thesis students much have successfully defended their thesis proposal prior to advancement to candidacy. Applications for Advancement to Candidacy for Thesis students are submitted to their Committee Chair and, with Committee Chair approval, submitted to the Biology Graduate Director for processing.

_____ 2) **Apply to the University for Graduation.** Note, the application for graduation is due to the university well before the expected term of graduation. Students should make sure that they are checking these deadlines and that they submit their application into the university on time. Graduation application instructions and deadline dates are available here: http://www.csub.edu/admissionsandaid/graduation/masters/index.html

Second Semester

_____ 1) Complete graduate course work as outlined in the student's approved Concentration Outline. At least 60% of all graduate coursework must be at the 500(0)- or 600(0)- level.

_____ 2) Non-thesis students must pass the comprehensive written examination for non-thesis students. The exam will be offered once each semester, most semesters the exam will be offered

at 9 AM on the first Friday of November and at 9 AM on the first Friday of March. Check with the Biology Graduate Director to confirm the test date! It is the responsibility of the student to make sure that they are available to take the exam during the term they intend to graduate.

_____ 3) Thesis students should enroll in BIOL 6921 in their final semester. Following approval from the Thesis Committee Chair/Advisor, the student should distribute their thesis to their other committee members for review. A Thesis Defense should be scheduled no earlier than two weeks following distribution of the entire complete thesis draft to the entire committee. The Thesis Defense will consist of a research presentation and must be announced publicly at least 2 weeks prior to the presentation. This formal presentation should be a detailed review of the Thesis research and should involve slides and/or video displays. The presentation should be 40-50 minutes in duration with an additional 10-15 minutes for questions from the general audience.

Following the presentation, the Candidate will field additional, specific, and in-depth questions from their Graduate Committee during a closed meeting. After this question and answer session is completed, the Committee will excuse the Candidate and, in private, decide to accept or reject the thesis. Credit for BIOL 6921 will only be granted if the thesis is successfully completed and accepted by a student's Graduate Committee. And following submission of the completed thesis to the library by the required date for completion within that semester.

If the thesis defense is not passed during the students first attempt, they may revise their thesis and redistribute it to the committee once within the same term. Any new distribution of a revised thesis draft resets the two week timeline for review and a new defense may not be scheduled any earlier than two week following the distribution of a revised version of the thesis. The Graduate Committee may also require that a second research presentation occur. A thesis defense may not be attempted more than two times within a term.

_____ 4) Thesis students must submit their thesis to the Walter Stiern Library before they will be approved for graduation and allowed to walk. Information regarding thesis guidelines and the submission procedure are maintained by CSUB's Walter Stiern Library.
http://www.csub.edu/academicprograms/_files/masters%20thesis%20or%20projects%20general%20information%20and%20guidelines.pdf

11. TWO-YEAR RECOMMENDED COURSE PLANS

The following course plans may assist students in completing their MS degree within the recommended two-year completion time. These are meant as rough-guidelines and include flexible recommendations. Students should meet with their graduate advisor (Biology Graduate Director or Committee Chair) for specific recommendations. These course plans also contain additional useful information about goals for each year of the program.

MS BIOLOGY				T
Thesis Track Sample Schedule (8 units required to be full-time*):				
	Fall		**Spring**	
Year 1	Course	Units	Course	Units
	BIOL 5010 (Current Topics)	2	**BIOL 5010 (Current Topics)**	2
	BIOL 5100 (Adv. Research Design)	4	**BIOL 5901 (Research)**	2
	BIOL 5901 (Research)	2	**BIOL 4xxx/5xxx (Elective)*** **	4
	Total units:	8	Total units:	8
	**		*BIOL 5901 units are typically used for thesis proposal preparation and defense.*	
Summer	*Many thesis students choose to conduct thesis research over the summer following their thesis proposal defense.*			
	Fall		**Spring**	
Year 2	Course	Units	Course	Units
	BIOL 6010 (Eco/Evo Seminar)	2	**BIOL 5010 (Current Topics)**	2
	BIOL 5710 (Adv. Topics)	4	**BIOL 6911 (Thesis)**	3
	BIOL 6911 (Thesis)	2	**BIOL 6921 (Thesis Defense)*****	1
			(For full-time, add 2 additional elective units)**	
	Total units:	8	Total units:	6
	Student can apply for Advancement to Candidacy after successful completion of 20 units, formation of committee, and successful proposal defense and completion of a Plan of Study.		*Graduation!*	
	Students should apply to graduate during this term. Check the university webpage for instructions on how to apply for graduation and the application deadlines.			
			Total Units:	**30**

*Depending on financial aid requirements, students may not need to be on a full-time schedule. The schedule included above is designed to assist students that require full-time enrollment and who are trying to graduate within two years.

**Students who are conditionally classified should apply for admission as a classified graduate student at the end of their first semester.

***More than 60% of units must be taken at the 5000- or 6000-level.

****Only 30 units are required for graduation--students not requiring full-time enrollment may wish to not enroll in any additional elective units.

*****This course may be repeated if students do not successfully complete their thesis defense and thesis submission to the library on the first course attempt.

MS BIOLOGY			NT

Non-thesis Sample Schedule (8 units required to be full-time*):

	Fall		Spring	
Year 1	Course	Units	Course	Units
	BIOL 5010 (Current Topics)	2	**BIOL 5010 (Current Topics)**	2
	BIOL 5100 (Adv. Research Design)	4	**BIOL 4xxx/5xxx (Elective)*** **	4
	BIOL 4xxx/5xxx (Elective)* **	4	**BIOL 4xxx/5xxx (Elective)*** **	4
	Total units:	10	Total units:	10
			Student should meet with the Graduate Director to confirm their Plan of Study.	
	Fall		**Spring**	
Year 2	Course	Units	Course	Units
	BIOL 6010 (Eco/Evo Seminar)	2	**BIOL 5010 (Current Topics)**	2
	BIOL 5710 (Adv. Topics)	4	**BIOL 4xxx/5xxx (Elective)*** **	4
			BIOL 6901 (Non-thesis Exam)*** **	1
	(For full-time, add 2 additional elective units)** **		**(For full-time, add 1 additional elective unit)**** **	
	Total units:	6	Total units:	7
	Student can apply for Advancement to Candidacy after successful completion of 20 units, formation of committee, and successful proposal defense and completion of a Plan of Study.		*Graduation!*	
	Students should apply to graduate during this term. Check the university webpage for instructions on how to apply for graduation and the application deadlines.			
			Total Units:	**33**

*Depending on financial aid requirements, students may not need to be on a full-time schedule. The schedule included above is designed to assist students that require full-time enrollment and who are trying to graduate within two years.

**Students who are conditionally classified should apply for admission as a classified graduate student at the end of their first semester.

***More than 60% of units must be taken at the 5000- or 6000-level. (No more than 12 units may be taken at the 4000-level).

****Students are not elligible for BIOL 5911 until after they have successfully completed at least one quarter of graduate course work and until after they are a classified graduate student. BIOL 5911 may only count toward the degree once.

*****Students may consider taking the comprehensive exit exam (BIOL 6901) during the Fall Semester so that they have an additional semester to re-take the exit exam if needed. This course can be retaken if students do not pass exam on their first attempt.

APPENDICES

Additional forms and concentration outlines

CSUB Biology Program Thesis Committee Membership Record

(Graduate student Name)	(Graduate student CSUB ID #)	(Date)

(Proposed Thesis Topic)

I agree to serve as a member of the thesis committee for the above mentioned graduate student and thesis topic.

(Committee member name)	(Committee member signature)	(Date)
(Committee member name)	(Committee member signature)	(Date)

I agree to serve as the chair of the thesis committee for the above mentioned graduate student and I approve the two faculty members who have signed above as committee members.

(Committee Chair name)	(Committee chair signature)	(Date)

The Biology Graduate Director approves the thesis committee for the above mentioned graduate student.

(Graduate Director name)	(Graduate Director signature)	(Date)

When completed, this form should be returned to the Dept of Biology administrative assistant, and placed in the Biology Program files, in the student's folder. Copies should be sent to the student, other committee members and the former advisor if applicable. If there are changes in committee composition, the advisor should complete a new form.

APPLICATION FOR ADVANCEMENT TO CANDIDACY (THESIS)

PART I

1. STUDENT NAME: _____

2. ID #: _____

PART II

As Committee Chair for the above named student, I recommend his/her advancement to candidacy. The student has demonstrated a satisfactory level of scholastic competence by meeting the criteria established for this program of study.

The student has completed _____ units with a _____ grade point average. (Must be > 20 units with a GPA > 3.0)

A concentration outline has been completed and approved. A copy is attached.

The program requires that the student complete a thesis project proposal and successfully defend it with their committee before advancement to candidacy can occur. The student completed this requirement on _____(date).

A copy of the approved thesis proposal is attached. □ (check box)

The thesis/project is tentatively entitled:

_____

The following members comprise the student's thesis graduate committee and they have initialed next to their name to indicate their approval of the student's thesis proposal and defense:

Name _____ Position _____ Initials: _____
Name _____ Position _____ Initials: _____
Name _____ Position _____ Initials: _____

SIGNATURES

STUDENT _____Date _____

The Committee Chair provides their signature as an affirmative recommendation of eligibility of the student to continue with the program, attesting to the student's demonstration of a satisfactory level of scholastic competence, and the successful completion of a thesis proposal defense with the student's full graduate committee.

COMMITTEE CHAIR _____Date _____

GRADUATE DIRECTOR _____Date _____

APPLICATION FOR ADVANCEMENT TO CANDIDACY (NON-THESIS)

PART I

3. STUDENT NAME: _____

4. ID #: _____

PART II

The student has completed _____ units with a _____ grade point average. (Must be > 20 units with a GPA > 3.0)

A concentration outline has been completed and approved. A copy is attached.

SIGNATURES

STUDENT _____ Date _____

As the Biology Graduate Director and on behalf of the Graduate Committee, I recommend his/her advancement to candidacy. The student has demonstrated a satisfactory level of scholastic competence by meeting the criteria established for this program of study.

GRADUATE DIRECTOR _____ Date _____

CONCENTRATION OUTLINE
DEPARTMENT OF BIOLOGY
MS Degree (Non-thesis Option)
Catalog (2015–2016)

Name: _____
Address: _____
_____
ID#: _____

	Quarters		*Semesters*	
Coursework	***Date***	***Units***	***Date***	***Units***

Students must take 3 course offerings of BIOL 505 and/or BIOL 5010 (additional course offerings may count as elective courses):

BIOL 505: (3 quarter units each)			= BIOL 5010 (2 semester units each)	
a)	_____	_____	_____	_____
b)	_____	_____	_____	_____
c)	_____	_____	_____	_____

The following courses are required:

BIOL 510 (4 quarter units)	_____	_____	= BIOL 5100 (4 semester units) _____	_____
BIOL 577 (5 quarter units)	_____	_____	= BIOL 5710 (4 semester units) _____	_____
BIOL 605 (3 quarter units)	_____	_____	= BIOL 6010 (2 semester units) _____	_____
BIOL 680 (1 quarter units)	_____	_____	= BIOL 6901 (1 semester units) _____	_____

ELECTIVES (16 semester units required; No more than 12 semester units may be at the 4000-level):

Course:				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

UNIT TOTALS: ***(must be ≥50)*** _____ ***(must be ≥33)*** _____

Additional requirements:

GWAR satisfied _____
Overal GPA >3.0 with a B- or higher in ALL graded courses that apply toward degree _____

APPROVAL

_____	_____	_____	_____
Date	Advisor	Date	Biology Graduate Director

CONCENTRATION OUTLINE
DEPARTMENT OF BIOLOGY
MS Degree (Thesis Option)
Catalog (2015–2016)

Name: _____
Address: _____
_____
ID#: _____

	Quarters		Semesters	
Coursework	***Date***	***Units***	***Date***	***Units***

Students must take 3 course offerings of BIOL 505 and/or BIOL 5010 (additional course offerings may count as elective courses):

BIOL 505: (3 quarter units each)			= BIOL 5010 (2 semester units each)	
a)	_____	_____	_____	_____
b)	_____	_____	_____	_____
c)	_____	_____	_____	_____

The following courses are required:

BIOL 510 (4 quarter units)	_____	_____	= BIOL 5100 (4 semester units) _____	_____
BIOL 605 (3 quarter units)	_____	_____	= BIOL 6010 (2 semester units) _____	_____
BIOL 690 (8 quarter units)	_____	_____	= BIOL 6911 (5 semester units) _____	_____
BIOL 691 (1 quarter unit)	_____	_____	= BIOL 6921 (1 semester unit) _____	_____

ELECTIVES (12 semester units required; No more than 12 semester units may be at the 4000-semesters level):

Course:				
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

UNIT TOTALS: ***(must be ≥45)*** _____ ***(must be ≥30)*** _____

Additional requirements:

GWAR satisfied _____
Overal GPA >3.0 with a B- or higher in ALL graded courses that apply toward degree _____

APPROVAL

_____	_____	_____	_____
Date	Advisor	Date	Biology Graduate Director

Request for MS Program Non-thesis/Thesis Change

Student Information:

Name: _____ **Campus ID # _____**
Last First M.I.

Address: _____
Street Apt. # City State Zip Code

Student Signature _____ **Date _____**

Change Request:

Present:	**Request is submitted to Change to:**
Degree Objective: **MS Biology**	**Degree Objective:** **MS Biology**
Track (Circle One):	**Track (Circle One):**
Thesis Non-Thesis	**Thesis Non-Thesis**

Approval (Both signatures are required):

Approved: _____ _____ Date: _____
Print Name Signature
Thesis Advisor
(If changing from Thesis to Non-thesis this should be the signature of the current thesis advisor)
(If changing from Non-thesis to Thesis this should be the signature of the faculty member who will become the thesis advisor)

Approved: _____ _____ Date: _____
Print Name Signature
Biology Graduate Director

NOTE: Students must ALSO submit a REQUEST TO CHANGE PROGRAM/PLAN (POST-BACCALAUREATE) to the office of Admissions and Records to change between the thesis/non-thesis tracks!

APPLICATION FOR ADMISSION TO CLASSIFIED STATUS

_____ _____ _____

(Graduate student Name) (Graduate student CSUB ID #) (Date)

CRITERIA USED FOR ADMISSION AS A CONDITIONALLY CLASSIFIED GRADUATE STUDENT:

The following criteria have now been met (check all that apply):

_____ The required number of biology graduate program applicable units were taken within the first semester in the program (number of units taken: _____)

_____ All courses that apply to the degree have been passed with a B or higher for graduate coursework taken from CSUB and after conditional admission to the MS Biology program.

Student has taken the following courses or their equivalent:

_____ BIOL 301/3120 Research Design and Analysis
_____ BIOL 304/3010 General Genetics
_____ BIOL 305/3020 General Physiology
_____ BIOL 306/3110 General Ecology
_____ BIOL 470/4100 Evolution
_____ Additional course prerequisites required by Graduate advisor, Committee Chair, or Graduate Committee.

_____ Other: _____

Below list the dates and courses/grades/etc. and specific actions that remedied the criteria listed above:

Requirements for Admission to Classified Graduate Status:

_____ All of the above criteria have been remedied

The Biology Graduate Director has examined the above criteria and affirms that the Graduate student listed above has now met these criteria. The student is approved for admission as a Classified Graduate Student.

_____ _____ _____

(Graduate Director name) (Graduate Director signature) (Date)