



CAL POLY

M.S. BIOLOGICAL SCIENCES GRADUATE PROGRAM GUIDELINES

BIOLOGICAL SCIENCES DEPARTMENT

CALIFORNIA POLYTECHNIC STATE UNIVERSITY

SAN LUIS OBISPO, CALIFORNIA

The graduate guidelines of the Biological Sciences Department in this document supplement those given in the University Catalog and the Graduate Education website. The information given here pertains to departmental requirements for admission to the degree program, and to procedures and requirements for the pursuit of a Master of Science (M.S.) degree in Biological Sciences. Other information regarding the requirements and procedures for admission to the University as a graduate student is provided in the University Catalog.

Revised August 2026

This Graduate Student Handbook has been carefully screened for errors and is regularly updated. However, should this handbook and the University Graduate Catalog differ, the University Catalog for the year of initial student enrollment shall be the final authority.

Directory of Personnel

Biological Sciences Department (BIO)

Graduate Program Coordinator:

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Biological Sciences Coordinator for Specialization in Regenerative Medicine:

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Department Chair:

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Departmental Administrative Staff:

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Payroll and Research/Conference Funding & Travel:

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Cal Poly Graduate Education

Cal Poly Graduate Education (important information on everything, including applying to the program, required forms, financial support, thesis formatting requirements, etc.):

<https://grad.calpoly.edu/>

Dean of Graduate Education:

Dr. Amanda Lathrop

Cal Poly Graduate Education maintains a Canvas website accessible by all graduate students via your MyCalPoly Portal. See that Canvas page for graduate student resources from Graduate Education.

General Inquiries: grad@calpoly.edu

Thesis inquiries: thesis@calpoly.edu

Financial questions: graduatescholarship@calpoly.edu

Graduate M.S. Degree

Cal Poly Biological Sciences offers a Master of Science (M.S.) degree in Biological Sciences. This degree program is designed to prepare students for many types of biological work that require advanced training beyond a bachelor's degree. Students may study within the M.S. Biological Sciences program on two different tracks: 1) the research-based *thesis track*, or 2) the *Specialization in Regenerative Medicine*. The M.S. graduate program also compliments Cal Poly's strong undergraduate programs in Biological Sciences, Microbiology, and Marine Sciences. Many graduate students help mentor undergraduate students in research or work as teaching assistants for undergraduate laboratory sections.

Master of Science in Biological Sciences — Thesis Track

The M.S. Biological Sciences degree program *thesis track* provides students with the broad-based advanced research-based training needed for careers in industry and/or government agencies, or further graduate work leading to a Ph.D. Graduates of the M.S. program have gone on to careers in private companies, environmental consulting, federal and state government agencies, nonprofit organizations, teaching biological sciences at the elementary, secondary, and community college levels, or continued Ph.D. graduate work at other institutions.

Students in the program join a dynamic department with dedicated and productive faculty. A research thesis is required of students. The specialization of a student's research thesis topic is typically related to the specific field of study represented by the student's faculty advisor in the department.

Master of Science in Biological Sciences — Specialization in Regenerative Medicine

This specialization within the M.S. degree program accepts approximately ten candidates per year across Biological Sciences, Biomedical Engineering, or Animal Science (4-6 students within Biological Sciences). It is a two-year interdisciplinary program, with coursework and a capstone project the first year, and a paid full-time 10-month off-campus internship the second year. Internships are in various fields of regenerative medicine including cell therapy, gene therapy, and tissue engineering. Most internships are at biotechnology companies, providing real-world experience; there are also opportunities in academic research labs at UC San Diego. Students complete a project rather than a thesis, and complete both a written report and oral presentation on their projects. The program is supported by the California Institute for Regenerative Medicine and includes a stipend during the second year. Graduates are well prepared for industry careers in biomedical research and development (R&D) or related fields, translational research in academic institutions, or to pursue a further advanced degree such as a Ph.D.

Application & Admission Requirements

The application deadline is the 4th of January annually. Admission is for Fall semester only. The application cycle for admission to the program in Fall 2027 begins on August 1, 2026. The application deadline is January 4, 2027.

Admission Requirements

In addition to [Cal Poly university-wide admission requirements](#), admission into the graduate program in the Biological Sciences Department requires the following:

- **A minimum grade point average (GPA) of 3.0** from courses taken for completion of the applicant's undergraduate B.S./B.A. degree. Applicants with lower GPAs are considered only with extenuating circumstances.
- **Prerequisite courses:** One year of majors' level coursework in biology AND one course in each of the following areas: 1) general chemistry, 2) calculus, statistics, or data science, 3) genetics or molecular biology, and 4) evolution. NOTE: If you have not taken one or more prerequisite courses, you may still be admitted with conditional status, and you will be required to take the course at Cal Poly or another institution in the summer prior to starting the program.
- **Personal Statement**
Applicants must provide a statement that addresses the following points with separate subheadings for each question. How much space you devote to each subsection is up to you, but the total length should not exceed ~2-3 single-spaced pages:
 1. **Describe your research interests.** What biological questions most interest you and what types of research do you aim to pursue? If applying for the regular M.S. program, indicate what [Cal Poly Biological Sciences research faculty](#) you are interested in working with if admitted as a graduate student and why (NOTE: indicating faculty is not applicable if applying for the Specialization in Regenerative Medicine).
 2. **Describe your motivation for pursuing a M.S. in Biological Sciences.** What are your career goals? How will graduate training in biological sciences at Cal Poly help you achieve those goals?
 3. **Describe how your experiences have prepared you to engage in graduate-level research.** These experiences can include prior research training, but also other relevant experiences that have influenced your development as a scientist (e.g., a particular course, internship, study abroad, volunteer work, etc.). Given these strengths, what areas do you feel you need to improve by graduate training?
 4. **Optional:** Describe any special or extenuating circumstances that you want taken into account during the application review process that you consider relevant to your application (e.g., academic, professional, or personal challenges you experienced in the past).

- **Three (3) letters of reference** from people familiar with recent academic or work performance of the applicant. Carefully select your recommenders and request letters from individuals who know you well and can address how your academic, research, and/or professional experiences support your choice to pursue graduate-level training. You may submit additional letters if you would like.
- **Curriculum Vitae (CV)**
Applicants must submit a CV with their contact information (e-mail address and phone number) and educational and employment histories. In addition, provide the following information as applicable:
 - List of any academic honors, awards, or distinctions.
 - Other experiences or responsibilities in science-related activities, such as outreach, volunteer work, or other relevant work-related experiences.
 - List of scientific publications and presentations.
 - List of coursework or scientific training that does not appear on your transcripts (e.g., field courses, study abroad, etc.), but has been or will be completed before entering the graduate program.
- Admission to the thesis-track M.S. program requires that an advisor agree to supervise an applicant (not applicable if applying for the Specialization in Regenerative Medicine). For the thesis-track M.S. program, you need to contact faculty with expertise that align with your interests to discuss potential projects, prior to applying to the program. Faculty research interests can be found by browsing [faculty profiles](#).
- Note that GRE General or GRE Biology Subject scores are NOT required for applicants to the M.S. thesis-track program. Applicants do, however, have the option of submitting GRE scores as a supplemental part of their [Cal State Apply](#) application, if they would like that GRE information considered as part of the holistic evaluation of their application. Specifically, an applicant may want to submit GRE scores when the applicant considers those scores to provide additional information regarding the applicant's preparation and readiness for graduate-level study.

Application Checklist

Application to Cal Poly's graduate program in Biological Sciences requires completion of the following steps at two different websites:

1. Apply to Cal Poly via [Cal State Apply](#) by January 4.
On [Cal State Apply](#), the following materials MUST be uploaded by the January 4 application deadline:
 - Statement of Purpose (see note above) (typically 2-3 pages in length).
 - Three (3) letters of reference .
 - Curriculum Vita (CV) of the applicant (make sure to include a current e-mail address and phone number).

2. Arrange to send **official transcripts** from your B.S./B.A. degree granting institution. Official transcripts must be sent directly to the [Cal Poly Admissions Office](#) from the university or college where the coursework was completed. More information about sending official transcripts is provided on the [Cal Poly Admissions Office webpage titled Submitting Transcripts and Other Documents – Graduate Students](#).

Application Timeline

- Application completed and all supporting materials (including official transcripts sent from ALL institutions attended by the applicant for their undergraduate degree or any additional / supplemental university-level coursework) uploaded via Cal State Apply **by 4 January**.
- Eligibility determined by Admissions Office by March if all application materials were submitted by the deadline.
- Recommendation of acceptance communicated/decline into the program communicated by the Cal Poly Admissions Office by April via e-mail.
- Departmental financial aid (if applicable) offered through MyCalPoly portal.

Degree Requirements

The Biological Sciences Department offers programs leading to a Master of Science (thesis-track M.S. or research-based program) and an interdisciplinary M.S. specialization in Regenerative Medicine in collaboration with the Biomedical Engineering and Animal Science departments. The Regenerative Medicine program consists of one year of coursework, a ten-month research internship at a partner institution, and a final capstone project for one semester back at Cal Poly (see <https://regenmed.calpoly.edu> for more information).

The program of study for all M.S. degrees must include 30 units of committee-approved graduate work. A grade point average of 3.0 or higher is required in all courses included in the Plan of Study (*see below*). Only 5000-level or 4000-level courses can count toward the degree. The following courses CANNOT be taken by graduate students as part of the 30 units required in the study plan: Special Problems for Advanced Undergraduates (BIO 4400); Undergraduate Laboratory Assistantship (BIO 4450); Senior Project (BIO 4461, BIO 4462, BIO 4463); Honors Research (BIO 4466). Descriptions of all courses are provided in the Cal Poly Catalog: <http://catalog.calpoly.edu/>

Note: The curricula below reflect the graduate curriculum of the 2026-2028 Cal Poly Catalog.

At least 60% of units MUST be 5000-level.

Regenerative Medicine Specialization requirements and electives are denoted in blue font.

Core Requirements (16-18 units): (53-60% of units)

- *Must take 1 of the following:*
 - BIO 5501 – Molecular and Cellular Biology (4 units)
 - BIO 5502 – Evolution, Ecology and Organismal Biology (4 units)
- *Must take 1 of the following:*
 - BIO 5504 – Research Career & Proposal Development (3 units)
 - or BIO 5583 – Research and Professional Development for Regenerative Medicine Students (2 units)
- *Take 2 units of the following:*
 - BIO 5591 – Biology Colloquium (1 unit)
 - or BMED 5563 – Biomedical Engineering Graduate Seminar (1 unit)
- *Must take at least 3 units of the following courses:*
 - BIO 5590 – Seminar in Biology (1-2 units)
 - BIO 5509 – Communicating Biology to Various Audiences (1 unit)
 - BIO 5528 – Principles of Stem Cell Biology (2 units)
 - BIO 5531 – Advanced Behavioral Ecology (2 units)
 - BIO 5532 – Advances in Organismal Physiology (1-3 units)
- *Take 6 units of the following:*
 - BIO 5599 – Thesis (1-3 units)
 - or BIO 5598 – Master's Project (1-3 units)

Approved Electives (12-14 units): *(40-47% of units)*

BIO 5500 – Individual Study (1-3 units)
BIO 5501 – Molecular and Cellular Biology (4 units)
BIO 5502 – Evolution, Ecology and Organismal Biology (4 units)
BIO 5505 – Scientific Writing & Communication (1 unit)
BIO 5506 – Data Management and Visualization in Biology (2 units)
BIO 5509 – Communicating Biology to Various Audiences (1 unit)
BIO 5511 – Advanced Cell Culture Techniques (1 unit)
BIO 5531 – Advanced Behavioral Ecology (2 units)
BIO 5532 – Advances in Organismal Physiology (1-3 units)
BIO 5570 – Selected Topics in Biology (1-3 units)
BIO 5571 – Selected Advanced Laboratory (1-2 units)
BIO 5574 – Teaching Strategies for College Biology Laboratories (1 unit)
BIO 5575 – College Biology Teaching Practicum (1-2 units)
BIO 5585 – Cooperative Education Experience (1-6 units)
BIO 5590 – Seminar in Biology (1-3 units)
BIO 5595 – Extended Cooperative Education Experience (1-12 units)
BIO 5591 – Biology Colloquium (1 unit)
BMED 4480 – Drug Discovery and Development (3 units)
BMED 5510 – Principles of Tissue Engineering (3 units)
BMED 5560 – Cell Transplantation & Biotherapeutics (1 unit)
BMED 5561 – Cell Transplantation & Biotherapeutics Laboratory (2 units)
STAT 5120 – Intermediate Statistics for Graduate Students (3 units)
STAT 5430 – Applied Regression Analysis (3 units)
STAT 5540 – Statistical Methods for Study Design and Analysis (4 units)
STAT 5550 – Statistical Learning with R (3 units)
Any BIO course at the 4000 level, except for BIO 4400, 4450, 4461, 4462, 4463, or 4466.

Graduate Program Policies

Thesis-Track M.S. Students

Graduate Faculty Advisor

You must have a graduate faculty advisor. The primary role of your graduate faculty advisor is to advise and oversee the selection of your M.S. thesis research topic and assist you with the design, completion, and final oral and written presentations of your thesis research. Students will not be admitted to the program unless they have obtained the consent of a faculty member to serve as their advisor. That graduate faculty advisor must be a tenure-track faculty member of the Biological Sciences Department. If you are unable to continue with your original advisor and, in consultation with the departmental Graduate Coordinator, are unable to obtain a new advisor, you will be ineligible to continue in the program. Under unusual circumstances, you may elect to change graduate advisors during the degree program. This process must be accomplished with the knowledge and consent of both your new and current graduate advisor, and in consultation with the departmental Graduate Coordinator, who will oversee the process of that change.

The Graduate M.S. Committee

For the thesis-track M.S. degree in Biological Sciences, the student will have a Thesis Committee. Your graduate advisor will help you in selecting other faculty members to serve on your graduate M.S. thesis committee. Your graduate committee will help you in many ways. Members will assist in putting together your degree plan and selecting your program of courses. They will also assist you with the development of the research proposal and must approve the research project. They will be prepared to offer you advice and counsel throughout your degree program on any aspect of the program. Each committee member will read, edit, and evaluate your M.S. thesis, and must approve the final draft for completion of the written M.S. thesis degree requirement. Your committee is also responsible for evaluating your oral M.S. thesis defense.

That M.S. thesis committee must be comprised of at least three (3) committee members, including your graduate faculty advisor. Each student will select that Thesis Committee of at least 3 members before the end of Fall semester of the 1st year in the M.S. program. Composition of the Thesis Committee should be made in consultation with the graduate thesis advisor. You should choose your graduate committee members based on their ability to provide you with additional advice and input on designing and carrying out your thesis research. At least two committee members, including your major advisor, **MUST** be tenure-track faculty at Cal Poly. The third committee member may be (1) a faculty member within the Biological Sciences department, from another department at Cal Poly, or from a department at another university, or (2) a Ph.D.-level (or equivalent terminal degree) scientist outside of a traditional university setting.

Students are urged to select members of the Thesis Committee carefully, so that the committee is composed of a well-balanced set of experts who can advise the student in the various fields encompassed by the research project. To ensure continuity of advice and feedback, the committee should remain intact throughout the graduate degree program. Unavoidable changes

in committee composition and/or thesis topic must be mutually acceptable to all people involved. If a student would like to change advisors or a faculty member wishes to dismiss a student, a formal written request for change must be submitted to the Graduate Coordinator by either the student or advisor. The Chairs of the departmental Graduate Coordination Committee (GCC) and Department will meet with both the advisor and student to determine whether the dispute can be resolved. If both the student and the student's graduate faculty advisor agree, the GCC will evaluate the request.

It is very important that students maintain close contact with each committee member throughout the degree program. It is especially important to keep them informed of your progress on research and the writing of your thesis. To ensure that your committee is kept informed about your progress, the committee should be convened *at least once each year*.

Annual Review of Progress

Annually, the departmental Graduate Coordinator will review the progress of each graduate student in the biology programs. The review is designed to determine if you are making satisfactory progress toward your degree. Milestones such as completion of identified deficiencies, selection and meeting of your thesis committee, reports of committee meetings, and satisfactory progress in coursework will be reviewed. Should your progress be less than satisfactory, the departmental Graduate Coordinator will meet with you and your faculty advisor to discuss strategies to help your progress.

Regenerative Medicine Specialization M.S. Students

Graduate Faculty Advisors/Mentors

Students in the Regenerative Medicine Specialization will initially be advised by the Biological Sciences Coordinator for the Specialization. The Coordinator will assist with course planning, choosing a capstone project, and other advice for navigating the program. By the end of the first semester, students will have matched with a capstone research project advisor and with a faculty mentor. The capstone research project will be performed during Spring semester and Summer of the first year. Since the Regenerative Medicine program is interdisciplinary, the capstone research advisor may be faculty in Biological Sciences, Biomedical Engineering, or Animal Science. In addition, each student will have a faculty mentor within Biological Sciences; in some cases, this will be the same person as the capstone research advisor, but this is not required. The faculty mentor will provide guidance throughout the two-year program to provide support and advice. During the off-campus internship in the second year, students will meet via Zoom monthly with their faculty mentor and submit monthly reports. The faculty mentor will also evaluate the written internship report. Multiple faculty in the Regenerative Medicine program will evaluate the oral presentation on internship research.

PROGRAM MILESTONES

Graduate students should consult the timeline below and work with their research advisors and committee to plan and execute a successful project. Forms can be found at the Graduate Education website: <https://grad.calpoly.edu/steps-to-graduation-forms>

The forms are subject to change, so students should always look for the current version of forms on the website for [Graduation Education](#) and the [Biological Sciences Department M.S. Program](#) webpages.

Program milestones for all M.S. degree students:

- **Working Formal Study Plan & Advancement to Candidacy** (Grad Ed E-form, *due by end of Week 5 of the term in which you advance to candidacy*): This form must be completed to progress in the graduate program. The Working Formal Study Plan describes what courses you intend to count toward the 30 units of coursework for your graduate degree. Requirements for advancement to candidacy include completion of at least 6 units of graduate coursework with cumulative and higher ed GPA of 3.0 or higher and an approved culminating experience proposal (i.e., thesis proposal or capstone project). Once you have completed those milestones, you will initiate this form, review it with your advisor, get your advisor's signature, and submit it through Grad Ed for the Graduate Coordinator to sign. The target submission for this is at the end of your first year, but you cannot advance to candidacy until you have successfully completed your thesis proposal or gotten your RgM capstone project approved.
- **Request for Degree Evaluation** (Grad Ed E-form): E-form submitted during the first 5 weeks of the term in which you plan to graduate. This form can be submitted only once. If you need to change your expected graduation term, you will submit a Change of Degree Completion Term – Graduate request on the [Registrar's website](#).
- **Final Formal Study Plan (FFSP)** (Grad Ed E-form): E-form must be completed within the first 5 weeks of the term in which you plan to graduate. Note that your FFSP must include exactly 30 semester units (45 quarter units) of coursework that should count toward your M.S. degree, even if you actually took more courses. Sign, collect the signature of your Advisor, and then submit to the Graduate Coordinator. If the plan changes after filing, a new plan must be filed.
- **Culminating Experience Approval Form** (Grad Ed E-form): This E-form is to be completed and submitted to Graduate Education after the completion of the written thesis and oral defense (thesis-track students) or Master's project (Regenerative Medicine specialization students). It is due by Week 13 of the semester in which you plan to graduate.

Milestones for thesis-track M.S. degree students:

- **Graduate M.S. Thesis Committee** form (BIO Dept. form, *due at end of Fall semester of 1st year*): This form lists the faculty members for your M.S. thesis committee. It must be completed by you, signed by all committee members, and submitted to the Graduate Coordinator by the end of your 1st semester of enrollment (Fall semester of 1st year).
- **1st Thesis Committee Meeting** form (BIO Dept. form, *due at end of Spring semester of 1st year*): This form is to be signed by your committee after the 1st meeting of your M.S. thesis committee. This meeting should occur sometime during Spring semester of your 1st year in the program. This form must be completed by you, signed by all committee members, and submitted to the Graduate Coordinator by the end of Spring semester of your 1st year.
- **Completion and Approval of Written Thesis Proposal**: A long-format written proposal describing the plan for M.S. thesis research must be approved by your advisor and thesis committee no later than end of second semester of enrollment (Spring, 1st year). Typically, approval of the proposal is completed at or shortly after the 1st Thesis Committee Meeting.
- **Annual Evaluation of Research Progress** (BIO Dept. form): Form must be completed and submitted to the Graduate Coordinator by the end of the second semester of enrollment (Spring of the first year), Spring of the second year, and every semester thereafter. This form will be e-mailed to you by the Graduate Coordinator in the term in which it is due. Students whose advisors evaluate them as making unsatisfactory progress toward the degree will be required to meet with their advisor and the Graduate Coordinator and/or Department Chair to make a plan for improving their progress. Students who receive unsatisfactory evaluations twice in a row will be dropped from the program. Note that students who complete their research but do not finish their written thesis, then leave campus, will be given unsatisfactory evaluations unless they are continuing to work on the thesis at a pace deemed satisfactory by the advisor.
- **Approval of Thesis Draft** by student's advisor and thesis committee: All members of the committee must provide comments and indicate approval of the draft (pending final edits) to the student's advisor. *Note that students should submit the first draft of the full thesis to the committee at least 3 months prior to the desired defense date.*
- **Scheduling the Oral Defense**: Once you have revised your thesis draft using all of your committee's input *and* your advisor has given you the green light to schedule the defense, you should work with your committee to find a 3-hour block of time that works for everyone. It is wise to also have a backup time in case the office cannot schedule your first choice due to room conflicts, etc. After this, contact Kristin in the department office and ask her to schedule your defense at your chosen time. Note: *You must submit your request for the thesis defense date at least two weeks prior to the requested date, along with an electronic copy of the thesis (see below).*
- **Submission of Thesis to Biology Office**: A copy of the revised thesis (that has been approved by your advisor and committee members) must be submitted to Kristin in the office at least 2 weeks prior to your scheduled defense date. This thesis draft should be in the format indicated by the

Graduate Education website. (Note: This should *not* be a rough draft. This draft should be very close to final.)

- **Oral Defense of Thesis**: Must take place no later than the twelfth (12th) week of your graduation semester, in order to allow time for revision before submission deadline (see below).
- **Approval of Final Thesis** by student's advisor and thesis committee: Form with signatures submitted to Graduate Education Office along with thesis and digital archiving fee by term deadline (see deadlines and more specific information on thesis submission at <https://grad.calpoly.edu/steps-to-graduation-forms>).
- **Approval of Thesis Format** by Graduate Education Office: This can take longer than you anticipate. Be prepared to make changes to your thesis formatting in response to feedback from the Graduate Education Office.

Milestones for Regenerative Medicine M.S. students:

- **Matching with a Capstone Research Advisor and Faculty Mentor**: (*Fall semester of 1st year*) By the end of the first semester, students will have matched with a capstone research project advisor and with a faculty mentor. Since the Regenerative Medicine program is interdisciplinary, the capstone research advisor may be faculty in Biological Sciences, Biomedical Engineering, or Animal Science. In addition, each student will have a faculty mentor within Biological Sciences; in some cases, this will be the same person as the capstone research advisor, but this is not required. The faculty mentor will provide guidance throughout the two-year program to provide support and advice.
- **Capstone Research Poster Presentation**: (*Early August, after 1st year*) Students will present their proposed capstone research in the Summer after their first year in the program. This presentation serves as part of the requirements for advancement to candidacy for RgM students.
- **Oral Presentation of Internship Research**: (*Spring semester of 2nd year*) Students will present their internship research in an oral presentation at the end of the Spring semester of their 2nd year. This will occur as part of a symposium with other RgM students, and the oral presentation will be evaluated by multiple faculty in the RgM program.
- **Internship Report**: (*Spring semester of 2nd year*) Students will provide a written report of their internship research at the end of Spring semester of their 2nd year. This report will be evaluated by your faculty advisor in the program.
- **Poster Presentation at CIRM Trainee Networking Conference**: (*Summer after 2nd year*) Students will present their research in a poster presentation at the CIRM conference. There may also be opportunities for a short oral presentation at this conference. Conference location and dates are variable.

Detailed Descriptions of Required Milestone Forms for all M.S. Students

WORKING FORMAL STUDY PLAN & ADVANCEMENT TO CANDIDACY FORM

By the end of week 5 in the term in which a graduate student wants to advance to candidacy, each student will prepare and submit the **Working Formal Study Plan & Advancement to Candidacy Form**. The Working Formal Study Plan outlines the courses the student plans to take to complete the required 30 units of coursework for their M.S. degree. All coursework must be completed with a GPA of 3.0 or higher. Successful completion of coursework with a GPA of 3.0 or higher is used as an indication of whether or not the student will be allowed to continue graduate studies in the Biological Sciences Department.

Requirements for advancement to candidacy include completion of at least 6 units of graduate coursework with cumulative and higher ed GPA of 3.0 or higher and an approved culminating experience proposal (thesis research project or capstone project). Once you have completed those milestones, you will initiate this form, review it with your advisor, get your advisor's signature, and submit it through Grad Ed for the Graduate Coordinator to sign. The target submission for this is at the end of your first year, but you cannot advance to candidacy until you have successfully completed your thesis proposal or gotten your capstone project approved.

The Advancement to Candidacy is a step that clears the student to complete his/her degree. It certifies that 1) the Working Formal Plan of Study was correctly outlined and filed, 2) any conditions of admission have been (or will be) completed, and 3) the Thesis Committee or Capstone Advisor approves of the student's proposed plan of research. Students cannot advance to candidacy until they have successfully defended their thesis proposal or gotten their capstone project approved.

FINAL FORMAL STUDY PLAN

The **Final Formal Study Plan** must be submitted within the first 5 weeks of the beginning of the semester in which you plan to graduate. All background coursework deficiencies must be completed by this time.

The Final Formal Study Plan must comply with minimal requirements and regulations of the California Education Code and Cal Poly regulations (see the University Catalog) as well as requirements of the Biological Sciences Department. These include:

1. Completion of a minimum of 30 units within 7 years after admission to the graduate program.
2. Completion of no less than 21 units in residence.
3. Completion of no less than 18 units in courses at the graduate 5000-level.

ADDITIONAL REQUIREMENTS FOR THE M.S. THESIS-TRACK PLAN

Thesis-track students must complete a research thesis and must complete 6 units of Thesis coursework (BIO 5599). The thesis is based on a student's own research. Thesis (BIO 5599) is open only to a graduate student having the approval of the student's Graduate Advisor.

Each thesis-track M.S. student is expected to present a thesis proposal in both written and oral forms at a meeting with his/her Thesis Committee by the end of the second semester of enrollment. The student should provide the committee members with a copy of the research proposal at least two weeks before the meeting. The proposal should outline the overall research plan in sufficient detail so that the committee may evaluate its feasibility and acceptability as an appropriate research project. The Thesis Committee may require modification of a thesis proposal until all people involved mutually agree upon the objectives, methodology, and other aspects of the proposal. As the thesis proposal constitutes a formal statement of research to be completed for the degree, the student should have a reasonable expectation that the thesis will be acceptable if all elements of the proposal are completed in a satisfactory and timely manner.

The Thesis Committee assumes the responsibility of advising the student to ensure the success of the student's research, and the department expects that the student will seek regular reviews of the research by the Thesis Advisor as well as periodic reviews by the committee. The committee will provide constructive feedback such that potential excesses or deficiencies in the research become apparent to the student at a time when corrective measures can be taken to rectify any problems.

A complete and essentially final copy of the thesis must be provided to all committee members well in advance of (at least 6 weeks prior to) the time that the student plans to defend the thesis. The style of the thesis should follow the **Thesis Formatting Guidelines** specified by the Graduate Education Office: <https://grad.calpoly.edu/masters-thesis>

The Cal Poly Graduate Education Office requires review of all thesis formatting *prior* to submission for graduation. Appointments for thesis formatting review can be scheduled with Cal Poly Graduate Education during their open office hours or by emailing thesis@calpoly.edu to schedule an appointment. For current Graduate Education office hours, see the following webpage: <https://grad.calpoly.edu/contact-us>

The student, advisor, and committee may reserve the right to reschedule the oral defense if the guidelines have not been met. The oral defense of the thesis should be scheduled no later than the twelfth week of the semester in which a student plans to graduate. Failure to meet this deadline may mean that the student will not graduate that term. The time and place of the thesis defense must be announced to all faculty and the graduate student body of the department no less than two weeks prior to the date of the defense. This announcement will be accompanied by an electronic version and hard copy of the thesis draft (placed in the mail room). The thesis defense will be open to all interested individuals. The student should be prepared to give a seminar discussing the immediate and related subject areas as well as the results of the thesis. After that seminar, the student will meet with his/her committee for a more in-depth discussion of the thesis (defense). The committee may require modifications to the thesis following the defense. The

student is expected to have any such modifications reviewed by his/her committee before submitting a final draft of the thesis to the Graduate Education Office. Once the Graduate Education Office approves the thesis, it must be submitted to the library (Digital Commons) electronically. See the Graduate Education website for specific instructions.

ADDITIONAL REQUIREMENTS FOR THE RGM PLAN

Students in the MS. **Specialization in Regenerative Medicine** are not required to complete a thesis or present a defense on campus. Instead, they write an Internship Report and deliver oral presentations on their internship research, both at their host institution and at Cal Poly. In addition, they deliver a poster presentation on their capstone project at Cal Poly and present a poster on their research at a statewide CIRM (California Institute for Regenerative Medicine) conference in the summer after their 2nd year.

ADDITIONAL REQUIREMENTS FOR GRADUATION

1. All graduate students are required to **maintain a GPA of 3.0 or higher, calculated from all courses** included on the **Final Formal Study Plan**. A GPA below 3.0 for two sequential terms of enrollment will result in *Academic Notice* and the GCC reviewing the student's record(s). Students on *Academic Notice* may be recommended to the office of the Dean of the Bailey College of Science and Mathematics for discontinuation from the M.S. program.
2. Students **must earn a grade of C- or greater** for all courses listed in the **Final Formal Study Plan**.
3. Students not making acceptable progress in the program via coursework or M.S. thesis research may be placed on *Administrative Notice*. *Administrative Notice* will be determined by the GCC in combination with the faculty thesis advisor, thesis committee, and department Chair. Students on *Administrative Notice* for two consecutive academic semesters may be recommended to the office of the Dean of Graduate Education for discontinuation from the M.S. program.
4. Graduate students are required to maintain [continuous enrollment](#) from the time of first enrollment in a graduate program until completion of the degree. Continuous enrollment is defined as being enrolled during Fall and Spring semesters each year. Students can maintain continuous enrollment by being enrolled as a regular student, by obtaining approval for an education or medical leave prior to the semester when such a leave would begin, or by registering in a special course through Extended Education. [GS S5597](#) is a one-unit course, offered credit/no credit; credits in GS S5597 do not count toward meeting degree requirements. GS S5597 is only to be taken by students who have completed the coursework on the formal study plan and who are no longer conducting research on campus. Students who have completed the formal study plan but who are still conducting research on campus should register for BIO 5599 units through regular registration (not Extended Education). Students who do not register in at least one unit will be discontinued; formal reapplication and readmission will have to occur in order to reactivate student status. Students who fail to fulfill this continuous enrollment requirement will not be permitted to graduate—even if all other degree requirements have been completed—until payment has been made for all terms of non-enrollment (in the event of discontinuation, students must also reapply and be readmitted). This requirement is retroactive to Fall 2009. In addition, all graduate students must be enrolled during the term in which they graduate. If a student plans to graduate in summer, Cal Poly requires enrollment in GS S5597 during that summer session.

ADDITIONAL EXPECTATIONS OF GRADUATE STUDENTS

Graduate programs include a variety of academic experiences beyond formal coursework. Ideally, these experiences should occur in an environment with scholarly exchange of ideas and information between faculty and students as well as among peers. Several activities are organized by the Biological Sciences Department to foster scholarly exchange, and graduate students are expected to participate.

The Biological Sciences Department conducts a **weekly Biological Sciences Seminar Series** (Fridays 12-1pm) in which notable off-campus experts from various fields are brought to campus to give seminars and interact with students. The visiting scientists often consult with graduate students concerning their thesis projects. Graduate students are expected to attend Friday weekly seminars in the Biological Sciences Department.

As part of the culminating experience of a M.S. student's thesis program, each student must present a formal seminar on his/her research project at a "thesis defense." This seminar is open to the public and is a venue to showcase the student's work as well as serve as a guide for the student's thesis committee members to determine whether the student has satisfactorily completed his/her thesis requirements. Students in the Regenerative Medicine Specialization will not present a "thesis defense," but they will deliver a comparable oral presentation. At the discretion of the internship site, some full presentations will not be open to the public; in these cases, students will present a short public overview of their research.

Attendance at thesis defense seminars is an important part of the scholarly exchange process and provides a positive showing of support for one's colleagues. All graduate students are expected to attend thesis defense seminars of other students, when allowable by their own coursework and/or Teaching Associate (TA) work schedule availability.

Informal interactions are also important to the learning process. We strongly encourage students to discuss ideas, concepts, and even key publications with their fellow students and with faculty. These interactions often lead to unanticipated insights and can even change research directions.

TIMELINE FOR FINISHING IN TWO YEARS

Timely progress toward degree completion is an expectation of students in the M.S. Biological Sciences program. Presented on the next pages are sample timelines for completing the coursework and research required to finish the M.S. program in two years. Every student's progress will differ based on individualized plans of study (i.e., coursework) and research thesis project goals. Please consult with your advisor and the Graduate Coordinator to plan your progress and consult with these sample timelines regularly to assist with course planning and conduct quarterly checks of your degree progress. The Regenerative Medicine Specialization is structured so that students will complete the program in two years, including the summer after the second academic year.

M.S. Biological Sciences Program - *Sample Course Sequence for Completing Thesis-Track Coursework in 3 Semesters:*

	Summer Before Year 1	Year 1		Summer Before Year 2	Year 2	
		Fall Semester	Spring Semester		Fall Semester	Spring Semester
Suggested Coursework	None [Complete outstanding prerequisites, if applicable]	<i>Required:</i> BIO 5501 (4) ¹ or BIO 5502 (4) BIO 5504 (3) BIO 5591 (1) ² <i>Suggested additional courses:</i> BIO 5500 (1-2 units) BIO 5574 (1 unit) ³ BIO 5590 (1-3 units) BIO 5599 (1-3 units) Elective(s) at 5000 or 4000 level (2-6 units) Total units: 10-12	<i>Required:</i> BIO 5591 (1) ² <i>Suggested additional courses:</i> STAT course (3-4 units) BIO 5590 (1-3 units) BIO 5500 (1-2 units) BIO 5599 (1-3 units) Elective at 5000 or 4000 level (3-4 units) Total units: 10-12	None [<i>Note: MSCI 4410 Scientific Diving (2 units) is offered in summer, for interested students</i>]	<i>Required:</i> BIO 5599 (1-3 units) <i>Suggested courses:</i> BIO 5590 (1-3 units) BIO 5591 (1) ² 4000- or 5000-level electives Total units: 8-10 Total units for degree = 30	GS S5597 (1) ⁵
Research Plan	Begin planning research w/ faculty advisor	- Establish Thesis Committee - Complete and submit Thesis Committee form - Develop research plan - Write Thesis Research Proposal	- Hold 1st Thesis Committee meeting and complete and submit 1st Committee Meeting form [proposal defense] - Complete and submit Working Formal Study Plan & Advancement to Candidacy form - Begin research data collection ⁴ - Begin thesis writing	- Continue research data collection & analysis - Thesis writing	- Collect & analyze data - Hold 2nd Thesis Committee meeting - Thesis writing	- Thesis writing - Submit draft thesis to committee - Submit Final Study Plan form - Submit Application for Graduation - Submit final thesis to BIO dept and schedule oral defense ⁶ - Oral Defense of thesis research - Submit Master's Thesis Approval Form to Graduate Education

The coursework above is provided as a suggestion and will differ from student to student. For example, a course in statistics (STAT) may be taken at any time; spring is simply one option. All students should consult with their advisors and the Graduate Coordinator to plan their coursework.

¹ Regenerative Medicine students will take BIO 5501. Thesis-track students may take either BIO 5501 or BIO 5502, depending on their area of study.

² Only two (2) units of BIO 5591 are required for graduation. However, we encourage students to take additional units of BIO 5591.

³ BIO 5574 is strongly recommended for any students interested in teaching.

⁴ The timing for beginning data collection varies. To complete the M.S. program in 2 years, data collection should begin in the first year.

⁵ The course **GS S5597** is a 'continuous enrollment' course. Once the 30 units of coursework are completed, graduate students must enroll in one (1) unit of **GS S5597** each semester until graduation. For Fall 2026, the **GS S5597** enrollment fee is \$465 per unit.

⁶ The thesis submitted to the BIO department office must be approved by the committee and submitted at least two weeks prior to the oral thesis defense.

M.S. Biological Sciences Program - *Sample Course Sequence for Completing Thesis-Track Coursework in 2 Semesters* :

	Summer Before Year 1	Year 1		Summer Before Year 2	Year 2	
		Fall Semester	Spring Semester		Fall Semester	Spring Semester
Suggested Coursework	None [Complete outstanding prerequisites, if applicable]	<i>Required:</i> BIO 5501 (4) ¹ or BIO 5502 (4) BIO 5504 (3) BIO 5591 (1) ² <i>Suggested additional courses:</i> BIO 5500 (1-2 units) BIO 5574 (1 unit) ³ BIO 5590 (1-3 units) BIO 5599 (3 units) Elective(s) at 5000 or 4000 level (2-6 units) Total units: 12-15 Total units: 15-18	<i>Required:</i> BIO 5591 (1) ² <i>Suggested additional courses:</i> STAT course (3-4 units) BIO 5590 (1-3 units) BIO 5500 (1-2 units) BIO 5599 (3 units) Electives at 5000 or 4000 level (3-4 units) Total units: 12-15 Total units for degree = 30	None [Note: MSCI 4410 Scientific Diving (2 units) is offered in summer, for interested students]	GS S5597 (1) ⁵	GS S5597 (1) ⁵
Research Plan	Begin planning research w/ faculty advisor	- Establish Thesis Committee - Complete and submit Thesis Committee form - Develop research plan - Write Thesis Research Proposal	- Hold 1st Thesis Committee meeting and complete and submit 1st Committee Meeting form [proposal defense] - Complete and submit Working Formal Study Plan & Advancement to Candidacy form - Begin research data collection ⁴ - Begin thesis writing	- Continue research data collection & analysis - Thesis writing	- Collect & analyze data - Hold 2nd Thesis Committee meeting - Thesis writing	- Thesis writing - Submit draft thesis to committee - Submit Final Study Plan form - Submit Application for Graduation - Submit final thesis to BIO dept and schedule oral defense ⁶ - Oral Defense of thesis research - Submit Master's Thesis Approval Form to Graduate Education

The coursework above is provided as a suggestion and will differ from student to student. For example, a course in statistics (STAT) may be taken at any time; spring is simply one option. All students should consult with their advisors and the Graduate Coordinator to plan their coursework.

¹ Regenerative Medicine students will take BIO 5501. Thesis-track students may take either BIO 5501 or BIO 5502, depending on their area of study.

² Only two (2) units of BIO 5591 are required for graduation. However, we encourage students to take additional units of BIO 5591.

³ BIO 5574 is strongly recommended for any students interested in teaching.

⁴ The timing for beginning data collection varies. To complete the M.S. program in 2 years, data collection should begin in the first year.

⁵ The course **GS S5597** is a 'continuous enrollment' course. Once the 30 units of coursework are completed, graduate students must enroll in one (1) unit of **GS S5597** each semester until graduation. For Fall 2026, the **GS S5597** enrollment fee is \$465 per unit.

⁶ The thesis submitted to the BIO department office must be approved by the committee and submitted at least two weeks prior to the oral thesis defense.

M.S. Biological Sciences Program - *Course Sequence for Regenerative Medicine Specialization:*

[illegible]

The coursework above is provided as a suggestion and some courses may be offered in different terms than listed here. All students should consult with their advisors and the Graduate Coordinator to plan their coursework.

¹ Regenerative Medicine students must take BIO 5501.

² If you took more than one STAT course as an undergraduate, a different STAT course may be appropriate.

³ BIO 5574 is strongly recommended for any students interested in teaching.

⁴ A minimum of 2 units of BIO 5591 and/or BMED 5563 are required for graduation.