

MS BIOLOGICAL SCIENCES, SPECIALIZATION IN REGENERATIVE MEDICINE

Program Learning Objectives

1. Perform fundamental laboratory skills involved in regenerative medicine research & development.
2. Discuss and critically evaluate biomedical primary literature.
3. Effectively communicate technical topics to both peer and lay audiences.
4. Explain the process of biotechnology development & commercialization.
5. Describe how research & development efforts are motivated by and impact physician & patient experiences.
6. Design and execute independent research projects.

Required Courses

BIO 501	Molecular & Cellular Biology	4
BIO 509	Communicating Biology to General Audiences	1
BIO 534	Principles of Stem Cell Biology	2
BIO/ASCI/BMED 583	Research Experience for Regenerative Medicine Students	2
BIO/ASCI/BMED 593	Regenerative Medicine Internship ¹	9
BMED 510	Principles of Tissue Engineering	4
BMED 515	Introduction to Biomedical Imaging	4
BMED 560	Cell Transplantation and Biotherapeutics	2
BMED 561	Cell Transplantation and Biotherapeutics Laboratory	2
STAT 513	Applied Experimental Design and Regression Models	4
or STAT 523	Design and Analysis of Experiments I	
or STAT 524	Applied Regression Analysis	

Seminars ²

Select from the following:		6
ASCI 581	Graduate Seminar in Animal Science	
BIO 574	Teaching Strategies for College Biology Laboratories	
BIO 590	Seminar in Biology	
BIO 591	Biology Colloquium	
BMED 563	Biomedical Engineering Graduate Seminar	

Approved Electives

Select from the following:		5
ASCI 406	Applied Animal Embryology and Assisted Reproduction	
ASCI 407	Assisted Reproduction Technologies of Gametes and Embryos Laboratory	
BIO 405	Developmental Biology	
BIO 406	Advanced Anatomy and Physiology: Neuroscience	

BIO 410	Functional Histology
BIO 426	Immunology
BIO 441	Bioinformatics Applications
BIO 475	Molecular Biology Laboratory ³
BIO 476	Gene Expression Laboratory
BIO 500	Individual Study
BIO 502	Biology of Organisms
BIO 524	Developmental Biology Seminar
CHEM 418	Neurochemistry
CHEM 474	Protein Techniques Laboratory

Total units **45**

- ¹ Students will complete their internship at one of our partner institutions. An updated list of our current partners can be found on our program website: regenmed.calpoly.edu (<https://regenmed.calpoly.edu>).
- ² Take at least one offering of ASCI 581, BIO 590, and BMED 563; the remaining units up to 6 may be from any combination of seminar courses, chosen in consultation with a faculty advisor.
- ³ Strongly recommended if not already taken an equivalent course.