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
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 501</td>
<td>Molecular &amp; Cellular Biology</td>
<td>4</td>
</tr>
<tr>
<td>BIO 509</td>
<td>Communicating Biology to General Audiences</td>
<td>1</td>
</tr>
<tr>
<td>BIO 534</td>
<td>Principles of Stem Cell Biology</td>
<td>2</td>
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<tr>
<td>BIO/ASCI/BMED 583</td>
<td>Research Experience for Regenerative Medicine Students</td>
<td>2</td>
</tr>
<tr>
<td>BIO/ASCI/BMED 593</td>
<td>Regenerative Medicine Internship</td>
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<tr>
<td>BMED 510</td>
<td>Principles of Tissue Engineering</td>
<td>4</td>
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<tr>
<td>BMED 515</td>
<td>Introduction to Biomedical Imaging</td>
<td>4</td>
</tr>
<tr>
<td>BMED 560</td>
<td>Cell Transplantation and Biotherapeutics</td>
<td>2</td>
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<tr>
<td>BMED 561</td>
<td>Cell Transplantation and Biotherapeutics Laboratory</td>
<td>2</td>
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<tr>
<td>STAT 513</td>
<td>Applied Experimental Design and Regression Models</td>
<td>4</td>
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<tr>
<td>or STAT 523</td>
<td>Design and Analysis of Experiments I</td>
<td></td>
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<tr>
<td>or STAT 524</td>
<td>Applied Regression Analysis</td>
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Seminars
Select from the following: 6
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ASCI 581</td>
<td>Graduate Seminar in Animal Science</td>
</tr>
<tr>
<td>BIO 574</td>
<td>Teaching Strategies for College Biology Laboratories</td>
</tr>
<tr>
<td>BIO 590</td>
<td>Seminar in Biology</td>
</tr>
<tr>
<td>BIO 591</td>
<td>Biology Colloquium</td>
</tr>
<tr>
<td>BMED 563</td>
<td>Biomedical Engineering Graduate Seminar</td>
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</table>

Approved Electives
Select from the following: 5
<table>
<thead>
<tr>
<th>Course Number</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>ASCI 406</td>
<td>Applied Animal Embryology and Assisted Reproduction</td>
</tr>
<tr>
<td>ASCI 407</td>
<td>Assisted Reproduction Technologies of Gametes and Embryos Laboratory</td>
</tr>
<tr>
<td>BIO 405</td>
<td>Developmental Biology</td>
</tr>
<tr>
<td>BIO 406</td>
<td>Advanced Anatomy and Physiology, Neuroscience</td>
</tr>
</tbody>
</table>

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.
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.