**Recommended Coursework Strategy for B.S. Biology, Concentration in Microbiology:**

**4 – year plan**

**MEET WITH YOUR MICROBIOLOGY MAJOR ADVISOR EVERY SEMESTER!**

Students who are “Undeclared with an Interest in Biology – BS” should be taking COURSES IN THE MAJOR in YEAR 1.

<table>
<thead>
<tr>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
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</thead>
<tbody>
<tr>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
<td><strong>Fall</strong></td>
<td><strong>Spring</strong></td>
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<tr>
<td>MATH 226 Calculus I (4)</td>
<td>BIOL 230 Gen Biol I (5)</td>
<td>BIOL 240 Gen Biol II (5)</td>
<td>BIOL 355 Genetics (3)</td>
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<tr>
<td>CHEM 115 Gen Chem I (5)</td>
<td>CHEM 233 Org Chem I (3)</td>
<td>PHYS 111/112 Gen Physics I + lab (3+1)</td>
<td>PHYS 121/122 Gen Physics II + lab (3+1)</td>
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**Electives** (12 units) although the SFSU Bulletin does not currently list the courses, the electives may be chosen from the following list with advisor approval (*three elective courses must include lab):

- *Fall and Spring indicates when course is generally taught – check Class Schedule to confirm course offerings.*
- Prerequisites must be completed with a C- or better (unless otherwise stated in the Bulletin course description)
- BIOL 391 (Microscopy & Photomicrography, 2, Spring) (prerequisite one college physics course or instructor consent)
- BIOL 420 (General Virology, 3, Fall) (prerequisites BIOL 401/402)
- BIOL 425 (Emerging Diseases, 3, Spring) (prerequisites BIOL 230 & 240, one of BIOL 355, 401, or 350 AND one of CHEM 130 or 233).
- BIOL 430 (Medical Microbiology, 3, Spring) (prerequisite BIOL 401; consent of instructor)
- BIOL 431 (Medical Microbiology Lab, 2, Fall) (prerequisites BIOL 401 & 402; BIOL 430 (may be concurrent); consent of instructor)
- BIOL 435 (Immunology, 3, Fall/Spring) (prerequisite BIOL 350 OR BIOL 401)
- BIOL 436 (Immunology Lab, 2, Spring) (prerequisites BIOL 402 & concurrent enrollment in BIOL 435)
- BIOL 443 (Microbial Physiology Lab, 2) (prerequisite BIOL 442, may be taken concurrently)
- BIOL 446 (Microbial Genomics, 4, Spring, counts as a lab) (prerequisites BIOL 401, 402 & 355 and consent of instructor)
- BIOL 453 (General Parasitology 3, Fall) (prerequisites BIOL 230, 240, & 355)
- BIOL 454 (Parasitology Lab, 1, Fall) (prerequisite BIOL 453, may be taken concurrently)
- BIOL 490 (Ecology of Infectious Diseases, 4, Fall) (prerequisites BIOL 230 & 240)
- BIOL 625 (Hematology, 3, Spring, counts as a lab) (one semester of college physiology)
- BIOL 638/738 (Bioinformatics & Genome Annotation, 4, Fall, counts as a lab) (prerequisite BIOL 230 or consent of instructor)

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*Options for 2nd semester of Math: MATH 124 Elementary Statistics, MATH 227 Calculus II (4), MATH 228 Calculus III (4), CSC 210 Introduction to Computer Programming, BIOL 458 Biometry (4). There is flexibility in which semester the 2nd Math course is taken – consult your advisor.*

- MATH 124 Elementary Statistics
- MATH 227 Calculus II (4)
- MATH 228 Calculus III (4)
- CSC 210 Introduction to Computer Programming
- BIOL 458 Biometry (4)
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CHEM 336 (Organic Chemistry II Lab, 2, Fall/Spring) (prerequisite CHEM 234 with a grade of C or better, CHEM 335 with a grade of C or better or concurrent enrollment in CHEM 335. CHEM 234 Organic Chem I Lab is lower division and cannot be used to meet upper division elective requirements.)

Courses not in the electives list require PRIOR advisor approval for acceptance. For example, students may enroll in BIOL 699 (Independent Study, 1-3 units) if they wish to perform independent research. BIOL 699 requires a 3.0 GPA and development of a research project with a member of the Biology faculty.

Notes:
Students are required to complete the Upper Division Graduate Writing Assessment Requirement (GWAR) within the major. http://biology.sfsu.edu/content/gwar

CHEM 115 with a C or better, AND PHYS 111 or 220 with a C- or better, are prerequisites for CHEM 215/216.

This is a RECOMMENDATION only. It is designed so that two science classes are taken each semester (except in Year 4). It is certainly possible to take three science courses concurrently, if you can manage your time appropriately. Check the prerequisites of courses to see if you can take a course earlier in this scheme. For example, if you plan to take MATH 124 to satisfy the second-semester MATH requirement, you can take it during year 1 or year 2. You can also take CHEM 215/216 earlier.