Information for Cell & Molecular Biology Majors

Advising Session
Lower Division Requirements

1. 35-36 lower division units are required
   - BIOL 230
   - BIOL 240
   - CHEM 115
   - CHEM 215/216
   - PHYS 111/112/121/122
   - MATH 226
Lower Division Electives

1. MATH 124 (Elementary Statistics)
2. MATH 227/228 (Calculus II/III)
3. CSC 210 (Intro to Computer Programming)
4. BIOL 458 (Biometry)

Students intending to go to graduate school

Math 124 is not a good choice for grad schools. You’re better off taking either Calculus II, Biometry (BIOL 458)

Premed, pre-dental and pre-pharm students

Many schools require two semesters of calculus, so be sure to check the requirements of the schools to which you’re applying
Upper Division Requirements
(36 Units)

1. BIOL 350 (Cell Biology)
2. BIOL 351 (Experiments in Cell & Molecular Biology)
3. BIOL 355 (Genetics)
4. BIOL 357 (Molecular Genetics)
5. BIOL 382 (Developmental Biology)
6. CHEM 333/335 (Organic Chemistry I & II)
   *Fall 2010 CHEM 333 renumbered to CHEM 233*
7. CHEM 340/341 (Biochemistry I & II)
Upper Division CMB Electives

1. 8 upper division CMB elective units are required and one class must contain a lab section
   - X
   - Y
   - Z
When are the CMB courses generally offered?

1. BIOL 350, 351, 355, 357, 382 (spring and fall)
2. BIOL 356 Honors Genetics (spring)
3. BIOL 401/402 General Microbiology Lecture/Lab (spring and fall)
4. BIOL 525/526 Plant Physiology Lecture/Lab (spring)
5. BIOL 612/613 Human Physiology Lecture/Lab (spring and fall)
6. BIOL 630/631 Animal Physiology Lecture (fall) /Lab (spring)
7. BIOL 616 Cardiorespiratory Physiology (spring)
8. BIOL 620 Endocrinology (spring and fall)
9. BIOL 621 Reproductive Physiology (summer)
10. BIOL 638 Bioinformatics & Genome Annotation (fall)
11. BIOL 640 Cellular Neurosciences (fall)

This is when the classes are generally offered; course availability can change from year to year.
Upper Division Electives

1. Need an additional 8 upper division elective units selected from the following:
   - Group A
   - Group B
2. One of the electives must be a lab class
3. At least one elective must be selected from each of the two categories
   - One class from one group and two from the other
4. Substitutions can be made among these classes with consultation and approval of an advisor
Cell and Molecular Biology Group A
Electives (1 required)

1. BIOL 380 (Comparative Embryology)
2. BIOL 401/402 (General Microbiology Lec/Lab) ‡§
3. BIOL 425 ( Emerging Diseases ) *
4. BIOL 453/454 (General Parasitology Lec/Lab) ‡ §
5. BIOL 525/526 (Plant Physiology Lec/Lab) ‡
6. BIOL 612/613 (Human Physiology Lec/Lab) * ‡
7. BIOL 614 (Vertebrate Histology) §
8. BIOL 620 (Endocrinology) § ‡
9. BIOL 630/631 (Animal Physiology Lec/Lab) * ‡
10. BIOL 638 (Bioinformatics & Genome Annotation) ‡ §
11. BIOL 640 (Cellular Neuroscience) ‡

* Health professions
‡ Graduate School
§ Biotech
Cell and Molecular Biology
Group B Electives (1 required)

1. BIOL 356 (Honors Genetics) * ‡
2. BIOL 358 (Expt. Techniques Molec. Biol) ‡ §
3. BIOL 361 (Human Genetics)
4. BIOL 391 (Microscopy & Photomicrography)
5. BIOL 420/421 (General Virology Lec/Lab) ‡
6. BIOL 435 (Immunology) ‡
7. BIOL 442/443 (Microbial Physiology Lec/Lab) ‡
8. BIOL 524 (Plant Molecular Biology) ‡
9. BIOL 652 (Science Education Partners in Biology) ‡
10. CHEM 300 or 343 (Physical Chem or Biochem Lab) ‡
11. CHEM 351 (Physical Chem) ‡ §

* Health professions
‡ Graduate School
§ Biotech
Special Study in Biology (BIOL 699)

1. Generally it involves research in someone’s lab
2. You need to find a mentor yourself
   - Read the descriptions of research in various labs and choose the ones that sound most interesting to you
3. If there is room available in a lab, you and your mentor will work out a project for you, how you will be evaluated, number of units you’ll sign up for, etc.
4. Sign up for the units officially during the add period of spring and fall semesters (no official credit given for 699 during the summer)
5. May be able to use 699 units to meet elective requirements with advisor approval
Principles in Choosing Classes

1. Don’t try to take too many lower division classes at the same time—these are the classes that seem to cause students the greatest difficulty
   - Try to take no more than two major classes at the same time during the first couple of years

2. It’s generally better (when possible) to take fewer classes and remain an extra semester than to take too many at once and have to repeat them later
   - Any class that is used as a prerequisite for another class must be passed with a grade of C- or better
One Road Map to Graduation

Semester 1: MATH 226, PHYS 111/112
Semester 2: MATH 227; PHYS 121/122
Semester 3: BIOL 230; CHEM 115
Semester 4: BIOL 240; CHEM 333
Semester 5: BIOL 350; BIOL 355; CHEM 335
Semester 6: BIOL 351; BIOL 357; CHEM 215/216
Semester 7: CHEM 340; Group B elective
Semester 8: BIOL 382; CHEM 341; Group A elective

If you keep getting frozen out of lower division classes, try taking them at a junior college.
What if you want to take classes at another school?

1. Check on www.assist.org to see which courses have already been approved as being equivalent to SFSU courses.
2. If there is no equivalent course at the school you want to attend, then see an advisor BEFORE you take the class to ensure it is equivalent and complete a course equivalency form.
3. If you’ve already taken the class and need to have it transferred officially, then see an advisor to complete a course equivalency form (the Registrar giving you credit for units taken, does NOT necessarily mean they can be used for the major).
   - Bring a transcript from the school.
   - If the course is not listed on www.assist.org, bring a syllabus or course description.
Course Equivalency Form

YOU MUST PROVIDE A PRINTOUT FROM ASSIST.ORG AND/OR A COURSE DESCRIPTION AND/OR A SYLLABUS TO YOUR ADVISOR

EQUIVALENCY AUTHORIZATION

for Biology Major Course Requirements

Student Name: _______________________________ E-mail: _____________________ SFSU ID: ___________________

*It is the student’s responsibility to keep this form and submit it with his/her graduation petition.

*Community college transfer units CANNOT be used to meet UPPER DIVISION UNIT REQUIREMENTS

I request the following course:

<table>
<thead>
<tr>
<th>Institution</th>
<th>Course No.</th>
<th>Title</th>
<th>Units</th>
<th>Term (Sem or Qtr?)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
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</tr>
</thead>
</table>

This course equivalency was determined by:

- [ ] A formal articulation agreement
- [ ] evaluation by faculty advisor from course materials

I have determined this course to be:

- [ ] Lower Division
- [ ] Upper Division
- [ ] Course Content only/ No Unit Credit
Common mistakes in transferring classes

1. Expecting that courses taken at a Junior College can be used for upper division credit at SFSU
   - XX at City College cannot be transferred and counted as YY at SFSU, at least for credit
   - You can get credit for the content, but not the units

2. You get credit for fewer units than you expected for course when transferring a class
   - A four unit class at one school may only be equivalent only to a three unit class at SFSU—you’ll get credit for three units, not four
   - The equivalent course at SFSU may be four units, but the course you are transferring is only three units—you’ll get credit for three units, not four

3. Not completing course equivalency forms until you plan to graduate
   - Last minute surprises the semester you plan to graduate are difficult and stressful
When should you repeat a course?

1. If you receive less than a C- in a lower division course, you generally have to retake the course (check with an advisor to make sure)

2. If your GPA in your major is less than 2.0, you need to consider repeating courses in the major

3. If you receive a C or better in an SFSU course, the University Course Repeat Policy prevents you from repeating the course at SFSU
   - You may wish to repeat the course if you receive a C, if you plan on applying to a health professional or graduate school
   - You may petition the Department to retake the course
   - You may take the equivalent lower division course at a community college

Courses taken for C/NC cannot be counted towards your major. Graduate and professional schools often assign a C- to courses taken for credit when calculating your GPA…
How is your GPA calculated when you repeat a course?

“When undergraduate students choose to repeat a course in which the grade was F, U, WU, or IC, all units attempted and all grade points will be included in the student's cumulative totals. (Units earned toward graduation include courses receiving passing grades only.) When undergraduate students choose to repeat a course in which the grade was passing, all units attempted and all grade points earned will be used in the calculation of the student's grade point average, but the units earned will be applied to the calculation of total units earned only once.”
Minors and Double Majors

1. Can only major in one area of biology
2. Given the chemistry requirements for the CMB major, some students will choose to take a couple of additional courses and get a minor in chemistry
Cell & Molecular Biology Faculty Advisors (Spring 2010)

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