PROPOSED CHANGES TO THE BS BIOLOGY DEGREE PROGRAM IN THE COLLEGE/SCHOOL OF NATURAL SCIENCES SECTION IN THE UNDERGRADUATE CATALOG 2014-2016 or LAW SCHOOL CATALOG 2014-2016

Type of Change: X Academic Change

1. IF THE ANSWER TO ANY OF THE FOLLOWING QUESTIONS IS YES, THE COLLEGE MUST CONSULT NEAL ARMSTRONG TO DETERMINE IF SACS-COC APPROVAL IS REQUIRED.
   • Is this a new degree program? Yes___ No_x__
   • Does the program offer courses that will be taught off campus? Yes___ No_x__
   • Will courses in this program be delivered electronically? Yes___ No_x__

2. EXPLAIN CHANGE TO DEGREE PROGRAM AND GIVE A DETAILED RATIONALE FOR EACH INDIVIDUAL CHANGE (include page numbers in the catalog where changes will be made):

1. Option IV, 5; Option V, 5; Option VII, 5
   Reduce calculus by one semester and add biostatistics.
   Rationale: To build the foundation necessary to advance modern biological research, students are better served with taking only 1 semester in calculus and having exposure to analyzing statistical data in the field of biology.

2. Option IV, 7; Option V, 7
   Change Chemistry 369 to Biochemistry 369.
   Rationale: This field of study change is due to the recent reorganization of the School of Biological Sciences and the Department of Chemistry and Biochemistry. Biochemistry courses were previously listed under the chemistry field of study.

3. Option IV, 7; Option V, 7
   Remove CH 339K and 339L as alternatives to BCH 369.
   Rationale: Department of Molecular Biosciences is deleting CH 339K and 339L because the material is duplicated in BCH 369, a course for students who are not majoring in biochemistry and do not need a depth of information other than foundational concepts in biochemistry.

4. Option VII, 10
   Add Biochemistry 369 as an alternative to approved biology courses.
   Rationale: A foundational course in biochemistry is appropriate for plant biology majors to count toward the 24 hours of upper-division biology.

5. Option IV, 10; Option V, 9
   Add BIO 377-FRI, a Freshman Research Initiative undergraduate research course, to existing undergraduate research options that may count as an upper-division laboratory course if approved in advance.
   Rationale: Depending on the project, students can gain considerable experience in a research laboratory setting. The faculty support this endeavor if the project is sufficiently relevant to the degree option.

6. Option VII, 9
   Add statement that Freshman Research Initiative undergraduate research, undergraduate research, or undergraduate thesis, may count as an upper-division laboratory course if approved in advance.
   Rationale: Depending on the project, students can gain considerable experience in a research laboratory setting. The faculty support this endeavor if the project is sufficiently relevant to the degree option.

7. Option IV, 11
   Remove BIO 326M as an alternative to 326R.
   Rationale: Biology 326M does not cover sufficient material for the microbiology majors to be an acceptable prerequisite for other required microbiology courses such as BIO 330, 339, 360K, and 366.

8. Option IV, 11
   Remove BIO 332 as an alternative to BIO 320.
   Rationale: The course is no longer offered with sufficient frequency.

Impact statement last modified August 30, 2013
9. **Option V, 7; Option V, 10d**  
Remove CH 353M as a requirement in #7 and add CH 353 or 353M as an option in #10d  
**Rationale:** Department of Molecular Biosciences has determined that a specific course in physical chemistry is not necessary for students who are focused on the study of cell and molecular biology. However, Chemistry 353, or its duplicate, Chemistry 353M, is appropriate as an alternative to the approved biology courses in 10d.

10. **Option V, 10d**  
**Rationale:** BIO 325T, Human Genetics, is a relatively new course that is appropriate as a choice for cell and molecular biology majors. BIO 329, 129L, 332, 333, 343M, and 345 are no longer offered with sufficient frequency.

11. **Option VII, 9**  
Remove statement that BIO 177, 277, or 377 may count only once toward the laboratory requirement.  
**Rationale:** With the addition of the statement regarding BIO 377-FRI/377/379H, etc, the deleted statement is redundant.

11. **Option VII, 10**  
Add 328D and 352; remove BIO 128L, 343M, 262, 262L, and 363.  
**Rationale:** BIO 328D and 352 are added to provide more options for students. BIO 128L and 343M are no longer offered with sufficiency frequency. BIO 262, 262L, and 363 are deleted from the course inventory.

12. **Order and Choice of Work**  
Remove M 408D and 408S.  
**Rationale:** Several biology options will require only 1 semester of calculus. Some may continue to require 2 semesters. The BS in Biology Order and Choice of Work section should include only courses that are common to all options.

### 3. SCOPE OF PROPOSED CHANGE

a. **Does this proposal impact other colleges/schools?**  
Yes__ No_X__

   If yes, then how?

b. **Will students in other degree programs be impacted (are the proposed changes to courses commonly taken by students in other colleges)?**  
Yes__ No_X__

   If yes, then how?

c. **Will students from your college take courses in other colleges?** No.

   If 3 a, b, or c was answered with yes:
   - **How many students do you expect to be impacted?**
   - **Impacted schools must be contacted and their response(s) included:**
     Person communicated with:
     Date of communication:
     Response:

   d. **Does this proposal involve changes to the core curriculum or other basic education requirements (42-hour core, signature courses, flags)?** No.

   If yes, explain:
   - **If yes, undergraduate studies must be informed of the proposed changes and their response included:**
     Person communicated with:
     Date of communication:
     Response:

   e. **Will this proposal change the number of hours required for degree completion?** If yes, explain: No.

### 4. COLLEGE/SCHOOL APPROVAL PROCESS
Bachelor of Science in Biology

The Bachelor of Science in Biology degree program offers ten options. The options have certain prescribed work in common, and each option has additional requirements. Many fields in the study of biological systems require broadly based training that transcends the classical boundaries of biology. In planning a program of work to meet his or her degree requirements, a student interested in specializing in these interdisciplinary areas should choose courses both in biology and in sciences that complement biology. Students who plan to complete the program within four years will have little flexibility in course selection unless they plan a schedule in advance. More information is given in Order and Choice of Work below. Students who plan to follow option IX, biology honors, must be admitted to the Dean’s Scholars Honors Program.

Prescribed Work Common to All Options

All students pursuing an undergraduate degree must complete the University’s Core Curriculum. The core includes courses in language, literature, social sciences, natural sciences, and fine arts. In addition, students seeking the Bachelor of Science in Biology must complete the following degree-level requirements. In some cases, courses that fulfill degree-level requirements also meet the requirements of the core.

1. Two courses with a writing flag. One of these courses must be upper-division. Courses with a writing flag are identified in the Course Schedule. They may be used simultaneously to fulfill other requirements, unless otherwise specified.

2. Options I–VII and X: One of the following foreign language/culture choices. Students in options VIII and IX are exempt from this requirement.
   a. Second-semester-level proficiency, or the equivalent, in a foreign language.
   b. First-semester-level proficiency, or the equivalent, in a foreign language and a three-semester-hour course in the culture of the same language area.
   c. Two three-semester-hour courses in one foreign culture area. The courses must be chosen from an approved list available in the dean’s office and the college advising centers.

3. At least twenty-four semester hours of upper-division coursework beyond Biology 325 in biology and approved related fields, including at least one course from each of the following areas. In most options, the student must use specific courses to meet this requirement; these courses are listed in Additional Prescribed Work for Each Option.
b. Physiology and neurobiology: Biology 328, 361T, 365R, 365S.

4. At least twenty-one semester hours of upper-division coursework in biology must be completed in residence at the University. All students must complete at least thirty-six semester hours of upper-division coursework.

Additional Prescribed Work for Each Option

Option IV: Microbiology and Infectious Diseases

5. Mathematics 408C and 408D, or 408N, and Statistics and Data Analysis 328M and 408S.
6. An eight-semester-hour sequence of coursework in physics chosen from the following: Physics 301, 101L, 316, and 116L; 317K, 117M, 317L, and 117N; 303K, 103M, 303L, and 103N; 302K, 102M, 302L, and 102N.
7. Chemistry 301 or 301H, 302 or 302H, 204, and an organic chemistry/biochemistry series chosen from the following: Chemistry 220C, 320M, 320N, and Biochemistry 369, or 320M, 320N, 339K and 339L.
8. Biology 311C, 311D, and 325 or Biology 315H and 325H. These courses must be completed before the student progresses to other upper-division biology courses.
9. Biology 206L.
10. Two upper-division biology laboratory courses, one of which must be chosen from Biology 230L, 160L, and 361L. Biology 377-FRI/377/379H may be used for the second course if approved in advance by the microbiology faculty adviser. Biology 226L may not be counted toward requirement 10.
11. In fulfilling requirement 3 above, the student must complete the following courses: Biology 226L, 326R, or 326M, 328M, 330, 339, 360K, 366, 370, and 320 or 332 or 344.
12. Enough additional coursework to make a total of 126 semester hours.

Option V: Cell and Molecular Biology

5. Mathematics 408C and 408D, or 408N, and Statistics and Data Analysis 328M and 408S.
6. An eight-semester-hour sequence of coursework in physics chosen from the following: Physics 301, 101L, 316, and 116L; 317K, 117M, 317L, and 117N; 303K, 103M, 303L, and 103N.
7. Chemistry 301 or 301H, 302 or 302H, 204, 220C, 320M, 320N, and either 339K and 339L or Biochemistry 369 and 353M.
8. Either Biology 311C, 311D, and 325 or Biology 315H and 325H. These courses must be completed before the student progresses to other upper-division biology courses.
9. At least four laboratory courses in biology. Three of these courses must be upper-
division. **Biology 377-FRI/377/379H may be used for the second course if approved**
in advance by the cell and molecular biology faculty adviser.
10. In fulfilling requirement 3 above, the student must complete the following courses.
    a. **Biology 320** and **344**.
    b. **Biology 226L, 326R, 349, 370**, and one of the following: **320L, 331L, 349L**.
    c. **Biology 328, 365R,** or **365S**.
11. Enough additional coursework to make a total of 126 semester hours.

**Option VII: Plant Biology**

5. Mathematics 408C and **408D**, or 408N, and Statistics and Data Analysis 328M and **408S**.
6. An eight-semester-hour sequence of coursework in physics chosen from the following: **Physics 301, 101L, 316, and 116L; 317K, 117M, 317L, and 117N; 303K, 103M, 303L, and 103N; Physics 302K, 102M, 302L, and 102N**.
7. **Chemistry 301** or **301H, 302** or **302H, 204, 220C, 320M,** and **320N**.
8. Either **Biology 311C, 311D, and 325** or **Biology 315H** and **325H**. These courses must be completed before the student progresses to other upper-division biology courses.
9. At least four laboratory courses in biology. Three of these courses must be upper-
division. The student must complete **Biology 206L** or **208L**. **Biology 177, 277, or 377 may be counted only once toward the laboratory requirement. Biology 377-FRI/377/379H may be used for the second course if approved in advance by the plant biology faculty adviser**.
10. In fulfilling requirement 3 above, the student must complete at least twenty-four hours of coursework chosen from the following: **Biology 320, 320L, 322 and 122L, 323L, 324 and 124L, 327 and 127L, 328, 328D, 129L, 331L, 343M, 350M, 351, 352, 262 and 262L, 363, 370, 472L, 373, 373L, 374 and 174L, 375, and Biochemistry 369**.
11. Eleven additional semester hours of upper-division coursework in the College of Natural Sciences or the Jackson School of Geosciences. A course may not be counted toward this requirement if it does not fulfill major requirements in the department that offers it.
12. Enough additional coursework to make a total of 126 semester hours.

**Special Requirements**

Students in all options must fulfill both the University's **General Requirements** for graduation and the **college requirements**. They must also earn a grade of at least **C-** in each mathematics and science course required for the degree, and a grade point average in these courses of at least **2.00.** More information about grades and the grade point average is given in **General Information**.
To graduate and be recommended for certification, students who follow the teaching option must have a University grade point average of at least 2.50. They must earn a grade of at least C- in the supporting course in requirement 12, and in each of the professional development courses listed in requirement 14 and must pass the final teaching portfolio review; those seeking middle grades certification must also earn a grade of at least C- in each of the courses listed in requirement 15. For information about the portfolio review and additional teacher certification requirements, students should consult the UTeach-Natural Sciences academic adviser. To graduate under the honors option, students must remain in good standing in the Dean’s Scholars Honors Program, must submit an honors thesis approved by the departmental honors adviser, and must present their research in an approved public forum, such as the college’s annual Undergraduate Research Forum.

Order and Choice of Work

Students begin the Bachelor of Science in Biology degree program with six hours of introductory biology for science majors (Biology 311C and 311D), as well as Chemistry 301 or 301H and 302 or 302H and Mathematics 408C and 408D or 408N and 408S. The genetics course, Biology 325, is prerequisite to other upper-division biology courses. Students should consult with academic advisers about specific concentrations within biology, about appropriate courses in mathematics and physical sciences, and about course load and the balance between laboratory and nonlaboratory work. Most students select an option by the end of the second year and take at least twenty-one hours of upper-division coursework in the major in the third and fourth years.

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1 See [http://www.utexas.edu/provost/planning/cat_change/UnderGrad.html](http://www.utexas.edu/provost/planning/cat_change/UnderGrad.html) for detailed explanations.

2 Texas Higher Education Coordinating Board.

3 The proposed text should be based on the text of the current catalog available at [http://www.utexas.edu/faculty/council/pages/catalog_chgs/catcopy.html](http://www.utexas.edu/faculty/council/pages/catalog_chgs/catcopy.html). Strike through and replace (with underlines) only the specific language to be changed. Do NOT use “track changes!” For questions on completing this section, please contact Anita Ahmadi, fc@austin.utexas.edu, 471-5936 or Brenda Schumann, brenda.schumann@austin.utexas.edu, 475-7654.