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

____ Academic Change
____ Degree Program Change (THECB\textsuperscript{2} form required)

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___
   • Does the program offer courses that will be taught off campus?  Yes___ No___
   • Will courses in this program be delivered electronically?  Yes___ No___

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):

Option I:  Ecology, Evolution, and Behavior, 11d, 11ei, and 11eiv

1. Change BIO 328M to SDS 328M.
   **Rationale:** Biostatistics will no longer be offered under BIO.

2. Remove BIO 342L, 262 and 262L, 363, and 359
   **Rationale:** These courses were deleted from the course inventory effective Fall 2013.

Option II:  Human Biology

1. Prescribed Work Common to All Options, #2: Eliminate foreign language/foreign culture requirement for this option.
   **Rationale:** Eliminating this requirement follows the spirit of the BSA and provides more flexibility for students in completing their degrees.

2. Req #5 and 6: Remove second semester of calculus and add an advanced statistics course in computational biology.
   **Rationale:** Computational skills have become relevant if not essential to data acquisition, visualization and analysis in biology. Addition of this computational course is a vital step toward equipping HB majors with contemporary skills that will enhance their competitiveness in today's market. The course will also open vistas of inquiry that will lead them in new directions while completing their degree.

3. Req # 5: Move BIO 328M from old req #10, and change BIO 328M to SDS 328M.
   **Rationale:** BIO 328M and SSC/SDS 328M were cross-listed in previous semesters. There are no plans to teach BIO 328M in the future. Biology students will be directed into SDS 328M instead.

4. Req #10: Add SDS 328M as an approved laboratory course. Designate approved upper-division laboratory courses with asterisks.
   **Rationale:** SDS/SSC 328M has been counting toward the requirement for 4 laboratory courses by memo as a standard practice due to the increased computer lab time. It is clearer to students to indicate which courses will also count toward the lab requirement.

5. Req #11: Reduce upper-division biology from 21 to 18 hours.
   **Rationale:** By reducing required hours, students will have more flexibility in choosing courses within areas of interest.

6. Req #12: Alter concentration areas - and deletion of courses; and adding a new concentration area in human variation and evolution.
   **Rationale:** The faculty created a concentration area comprised of the anatomy courses removed from requirement #11 and anthropology courses added upon discussion of the concentration with Deborah Bolnick, associate professor in Anthropology. The human variation and evolution concentration follows recent research trends in this specialty, better equipping students who are interested in specialty who go on to graduate school. In addition, creating 2 main groupings for the concentrations will better enable students to enroll in sufficient hours to meet the concentration requirement, without need of individual petitioning.
7. **Req #13:** Deletion of BIO 137 (Topic 1: Senior Seminar in Human Biology).
   **Rationale:** A main feature of the course was to receive feedback from senior Human Biology majors about their experiences and suggestions for areas of improvement. The content does not warrant the course being required for all majors. In addition, it is difficult to adequately staff the course.

8. **Req #14:** Reduce the option hours from 126 to 120
   **Rationale:** The faculty reduced requirements in order to reduce the overall hours required for the degree. The reduction does not diminish the value of their educational experience in biology.

Option X: Computational Biology

1. **Req #5:** Remove BIO 328M
   **Rationale:** Biostatistics will only be offered under SDS 328M.

2. **Req #11:** Allow SDS 328M to count as 1 of the 4 upper-division lab requirements in the Computational Biology option.
   **Rationale:** Currently, BIO 321G, Introduction to Computational Biology, counts toward 1 of the 4 lab requirements. SDS 328M contains a computational lab in which students learn how to analyze and model real-world data using statistical software. The future computational biologists we are educating are better served with an additional computational experience, rather than a wet-lab experience.

3. **SCOPE OF PROPOSED CHANGE**
   a. **Does this proposal impact other colleges/schools?** Yes__X__ No____
      If yes, then how? Eight additional anthropology courses were added to the new concentration titled Human Variation and Evolution.
   b. **Will students in other degree programs be impacted (are the proposed changes to courses commonly taken by students in other colleges)?** Yes__X__ No____
      If yes, then how? Eight additional anthropology courses were added to the new concentration titled Human Variation and Evolution.
   c. **Will students from your college take courses in other colleges?** Option II: Yes, the addition of anthropology courses may impact Liberal Arts students.

If 3 a, b, or c was answered with yes:
   **How many students do you expect to be impacted?** 20
   **Impacted schools must be contacted and their response(s) included:** College of Liberal Arts
      Person communicated with: Liza Shapiro, Associate Chair, Department of Anthropology
      Date of communication: June 25, 2013
      Response: The Anthropology dept. approves the changes regarding the addition of anthropology courses as fulfilling requirements for the BS in Biology, Human Biology option, as noted in your email to James Bull below. (Liza Shapiro, Associate Chair)

   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:

4. **COLLEGE/SCHOOL APPROVAL PROCESS**
   Department approval date: May 7, 2013 (Opt II: Human Biology); ?? (Opt X: Computational Biology)
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 I, III, IV–VII and X: One of the following foreign language/culture choices. Students in options II, 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 I: Ecology, Evolution, and Behavior**

5. Mathematics 408C and 408D, or 408N 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, and 204.
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. One of the four courses must have a field component; the following courses may be used to meet this requirement: Biology 321L, 340L, 453L, 354L, 455L, 456L, 369L, 373L, Marine Science 352D, 354, 354C.
10. Biology 328M Statistics and Data Analysis 328M and three hours of coursework chosen from the following: Chemistry 320M, computer science courses at the level of Computer Science 303E or 313E, Geological Sciences 401 or 303, and upper-division mathematics courses.
11. In fulfilling requirement 3 above, the student must complete the following courses. No single course may be used to meet more than one of these requirements.
   b. Evolution: Biology 370.
   c. Behavior and comparative physiology: Biology 322 and 122L, 359K, or 361T.
   e. Six additional hours chosen from the following:
      i. Evolution: Biology 458L, 463, 472L, 374 and 174L, 478L.
      iii. Behavior: Biology 438L, 359I, 359R.
12. Enough additional coursework to make a total of 126 semester hours.

**Option II: Human Biology**

5. Mathematics 408C or 408N, and Statistics and Data Analysis 328M*, and 408D, or 408N and 408S.
6. Complete one of the following courses: Mathematics 408D, 408S, or Statistics and Data Analysis 348.
7. 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.  
8-7. Chemistry 301 or 301H, 302 or 302H, and 204.  
9. 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.  
10. At least four laboratory courses in biology and related fields, including Biology 206L or 208L. Three of these courses must be upper-division, including one course in biology. The student must complete Biology 206L or 208L, Anthropology 432L, Kinesiology 324K and Marine Science 120L may be counted toward this requirement, but the student must complete at least one upper-division laboratory course in biology. Courses that may count toward the laboratory requirement are marked with an asterisk.  
12. In fulfilling requirement 3 above, the student must complete Biology 346, at least six semester hours in area a below, and at least three hours each in areas b through e.  
   b. Anatomy: Anthropology 432L, Biology 446L, 478L, Kinesiology 324K.  
   c. Physiology: Biology 361T, 365R, 365S.  
   e. Evolution and ecology: Biology 357, 364, 370, 373.  
13. In fulfilling requirement 3 above, the student must complete at least fifteen semester hours of coursework, including at least nine hours of upper-division work, in one of the following concentrations from one of the two following groups of concentrations. A course counted toward requirement 11 may not also be counted toward requirement 12.  
   e. Group A: Chemistry 369 and 12 additional hours chosen from the following concentrations.  
   f. Group B: 15 hours chosen from the following concentrations. Only one of the following courses may be counted: Anthropology 432L*, Biology 446L*, 478L*, or Kinesiology 324K*.


13. Biology 137 (Topic 1: Senior Seminar in Human Biology), completed on the pass/fail basis in the student’s senior year. * 6 hrs UD BIO

14. Enough additional coursework to make a total of 126 semester hours. 5-6 elect hrs

* (to reach total of 24 UD BIO required in Prescribed Work Common to All Options)

Option X: Computational Biology

5. Mathematics 408C and 408D, or 408N, 408S, and 408M; Statistics and Data Analysis 329C or Mathematics 340L or 341; Mathematics 362K; and Mathematics 358K or 378K or Statistics and Scientific Computation 321 Statistics and Data Analysis 321 or 325H or 328M, or Biology 328M.


7. 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.

8. Chemistry 301 or 301H, 302 or 302H, and 204.

9. 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.

10. In fulfilling requirement 3 above, the student must complete Biology 321G, 370, and six additional hours of upper-division coursework in biology.

11. At least four laboratory courses in biology. Three of these courses must be upper-division. Biology 321G and Statistics and Data Analysis 328M may fulfill one-two of these upper-division requirements.
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.