CST Program Changes September 2021
Overview

Summary of CST Undergraduate Program Changes for Dean’s Advisory Committee and Collegial Assembly
September 14 and 24, 2021

<table>
<thead>
<tr>
<th>Department</th>
<th>Degree Type</th>
<th>Degree Program</th>
<th>Change</th>
<th>Description</th>
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</thead>
</table>
| Biology    | Minor       | Biology        | Array  | -Update required course options  
|            |             |                |        | -Lower required minimum grades from C to C- |
| CST        | Certificate  | Certificate in Science Science and Technology Writing | Establish | Provide students with skills needed to communicate effectively in their field and enhance opportunities for employment |

- CST Collegial Assembly will convene on Friday, September 24th, 2021
- Pending approval by the CST Collegial Assembly, UG program proposals will be submitted for approval at the November 3rd, 2021 Board of Trustees meeting (moved from normal October date)
- If approved by the Board of Trustees, these program changes will take effect in Fall 2021 and Spring 22 respectively.
Proposal to Restructure the Minor in Biology

1. Description and Rationale
   - The department is adding Biology 1112 and 1912 as possible alternatives to meet the previous requirement of Biology 2112 or 2912. Students pursuing the minor may now take Biology 1112, 1912, 2112 or 2912 to meet the requirement for the second introductory biology course.
   - Changes are also being made to the pre-requisites, eliminating the need to take Chemistry 1031 and Chem 1032 as pre-requisites for Biology 1112 and 1912.
   - The pre-requisite for Biology 2112 and 2912 will now be Chem 1031. The co-requisite course is now Chem 1032 and Organic Chemistry I is no longer a co-requisite course.
   - A grade of C- in both Biology 1111 and Biology 1112 or Biology 2112 is now required to take Biology electives.

Rationale
The Biology minor is being updated to coincide with the changes already made to the Biology major, including the change in prerequisites for BIOL 1111 and 2112, and the creation of BIOL 1112 (proposal pending) as an alternative option to 2112. Other requirements stay the same.

2. Curriculum
   a. Addition of Biology 1112 and Biology 1912 as alternatives to Biology 2112 and Biology 2912 allowing for the possibility of taking this course earlier in the curriculum.
   b. No changes to scheduling or overall time frame, just more flexibility.
   c. The program is held on Main campus.
3. **Impact on Faculty and Students**
   a. No impact on Faculty
   b. This change will make the Biology Minor degree more accessible to interested students due to fewer pre-requisite courses.

4. **Impact on Resources**
   a. The fees for the courses will remain as is for lab.
   b. The program will be offered on Main campus.
   c. This change will also allow students in some CPH programs more flexibility and earlier entry into the courses then in previous years.
   d. There will be no impact on space resources.

5. **Assessment**
   The program goals remain the same. The program will be assessed by the Biology department as outlined in the yearly program assessment report submission.

6. **Implementation**
   The proposed changes will take effect beginning in the Fall 2022 semester. Students currently enrolled in the Biology Minor will be permitted to follow the new program requirements.

7. **Process for Development of Proposal**
   The Biology Undergraduate Curriculum Committee, led by Erik Cordes, developed, reviewed, and approved the proposal. The CST Undergraduate Committee reviewed and approved the proposal for the B.S. in Biology, B.A. in Biology and B.S. in Biology with Teaching programs during the spring of 2021. The CST Dean’s Advisory Committee approved the program changes on February 8th, 2021. The CST Collegial Assembly approved all changes on February 12th, 2021. All programs were approved by the Board of Trustees at the May 11th, 2021 meeting. The minor was mistakenly overlooked by the department at the time the majors programs were changed. The changes proposed here are to bring the minor in line with the changes already approved by both CST and the Temple Board of Trustees.
CST Certificate in Science and Technology Communication

In an era of accelerating scientific discovery and new challenges to society and the world, an understanding of science and technology (scientific literacy) is essential for the support of a well-informed public and enabling rational policies. The effective communication of science and technology is integral to science literacy. Individuals with skills in communicating and writing in the sciences and technology and having a strong foundation in the sciences or related field, can gain rewarding careers in the private and public sector, in bringing to the public (scientific matters) at a variety of levels.

The certificate in science and technology communication provides a foundational step for individuals seeking careers in this area. As science and technology communication necessarily requires a strong foundation in the sciences, the certificate program is taken alongside a major in a science field. The program is open to students from any college provided their major is STEM-based.

Courses:

Required:

SCTC 2396 – Writing for Science and Technology (3 credits)
This course will teach students how to become more effective writers by developing their technical writing skills through practical examples and exercises. The disciplinary content for the writing assignments will be based on the content from the student's major area: biology, chemistry, earth and environmental science, or physics. Specifically, students will learn the process of developing professional scientific documents, including abstract preparation, literature research practice, use of scientific databases, and creation of white papers leading to final proposals. The ability to formulate a research proposal is a critical skill for students entering research careers or working in scientific industries. All documents and assignments will be reviewed by faculty in the science disciplines.

CHEM/BIOL/EES/PHYS/CIS/MATH XX9X (3-5 credits)
Discipline-based Writing Intensive Courses from Chem, Bio, EES,
Physics, CIS, Math or other science major. Students from outside of CST can use a XX9X course from their major with approval of program advisor. (Students would take one of the following: BIOL 2296, 3096 or 3396, Chemistry 3397/3398, or 4196, CIS 3296, 4397 or 4398, EES 2096, 2097 or ENVS 4198, Math 3096, 3098 or 4096, Physics 2796 or 4796)

**Electives: Choose 2 only one maybe be a SCTC 2100 Special Topics course (total 6 credits)**

**BIOL 5522/4522: Introduction to Scientific and Regulatory Writing (3 credits)**
This course introduces students to the two primary types of medical writing done by/for pharmaceutical and biotech companies. Specifically, students will learn how to research and write abstracts, posters, clinical reports and other research manuscripts, patient education materials, and slide kits. In addition, students will be introduced to the basics of strategic planning and consulting, including the creation of publication plans and meeting planning from a marketing perspective. Students will also learn the fundamentals of regulatory writing. Topics will include overviews of U.S. and international regulatory agencies, product life cycles, the conduct of clinical trials and reporting clinical trial results, and activities and documentation involved with submissions for marketing approval of treatments.

**BIOL 5532/4532: Introduction to Grant Writing (3 credits)**
This course is designed for students who plan to enter professional careers requiring knowledge of grant writing. The course will teach students the mechanics of proposal writing and the political and social aspects of "grantsmanship" as they develop their skills in identifying sources of grant funding, doing useful research to support their applications, and tailoring their proposals to specific audience interests. There will be several short writing assignments, an exam, and an independent project. Students may also be asked to engage in a collaborative grant project to help build their skills in collaboration.
BIOL 5533/4533: Communicating Science to a Broader Audience/Non-Scientists (3 credits)
This writing intensive course will be developed as a hybrid class with online and in-class components, with instructor/s interacting with students by editing multiple drafts of a paper requiring the students to communicate a science topic to readers with either no science background or backgrounds in other STEM fields. The learning goal of this course will be emphasizing the communication of scientific theory and concepts to wide-ranging audiences, especially non-scientists. The class will require students to demonstrate the ability to break down complex science into accurate, yet understandable explanations, by writing an article in the style of the New York Times science section, or a science report in a newspaper such as the Philadelphia Inquirer.

Note: Pre-requisites for the to be newly created BIOL 4522, 4532 and BIOL 4533 would include the requirement that students will have completed at least one of the following upper-level courses. This is to ensure that students have sufficient scientific knowledge to complete the writing course being cross listed with the 5000 level PSM courses.

<table>
<thead>
<tr>
<th>Biology</th>
<th>3096, 3114, 3201, 3225, 3232, 3241, 3245, 3254, 3265, 3275, 3307, 3316, 3321, 3323, 3324, 3325, 3327, 3328, 3329, 3336, 3352, 3364, 3379, 3396 or 3403</th>
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<tbody>
<tr>
<td>Chemistry</td>
<td>3001, 3301, 3302, or 4401</td>
</tr>
<tr>
<td>CIS</td>
<td>3207, 3309, 3223, 3329</td>
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<tr>
<td>EES</td>
<td>2022, 3001 or 4101</td>
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<tr>
<td>Math</td>
<td>3096, 3098, 3043, 3137 or 3141</td>
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<tr>
<td>Physics</td>
<td>3301, 3302, 3701, 4101</td>
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**SCTC 2100: Best-Selling Science and Math**
This course will require that students read and critique bestselling science and math books. The book list may include: Zero: The Biography of a Dangerous Idea, Uncle Tungsten, Napoleon’s Buttons, I Contain Multitudes. Other noteworthy science and math books intended for readers with some knowledge of science and math will be added. The critique/book review will include an assessment of the fidelity of the content, readability, level of knowledge required of reader and quality of written communication. Students will be challenged to compose their own “chapter” for inclusion of one of the bestsellers.

**SCTC 2100: Communicating Science through Video**
The course will require that students create high quality video content in several areas. The areas include: explanation of a current discovery or event, a mini documentary on a scientific phenomenon, a media release on a novel scientific innovation, a commercial for a new product. Each video will be accompanied by a written script. Each script and video product will be peer evaluated. Videos will be created in the TUteach studio. The videos will be posted to a class website for public dissemination.