

DOCUMENTS OF THE GENERAL FACULTY

**PROPOSED CHANGES TO THE BACHELOR OF SCIENCE IN CHEMISTRY DEGREE PROGRAM
IN THE COLLEGE OF NATURAL SCIENCES CHAPTER IN THE *UNDERGRADUATE CATALOG*
2016-2018**

Dean Linda A. Hicke in the College of Natural Sciences has filed with the secretary of the Faculty Council the following changes to BS in Chemistry in the College of Natural Sciences chapter in the *Undergraduate Catalog, 2016-2018*. On September 30, 2015, the faculty representatives from department, the college curriculum committee, and the dean's designate approved the changes.

The secretary has classified this proposal as legislation of *exclusive* interest to a single college or school.

The Committee on Undergraduate Degree Program Review recommended approval of the changes on October 18, 2015, and forwarded them to the Office of the General Faculty. The Faculty Council has the authority to approve this legislation on behalf of the General Faculty. The authority to grant final approval on this legislation resides with UT System.

If no objection is filed with the Office of the General Faculty by the date specified below, the legislation will be held to have been approved by the Faculty Council. If an objection is filed within the prescribed period, the legislation will be presented to the Faculty Council at its next meeting. The objection, with reasons, must be signed by a member of the Faculty Council.

To be counted, a protest must be received in the Office of the General Faculty by December 4, 2015.



Hillary Hart, Secretary
General Faculty and Faculty Council

Impacted schools must be contacted and their response(s) included:

Person communicated with:

Date of communication:

Response:

- e. Does this proposal involve changes to the core curriculum or other basic education requirements (42-hour core, signature courses, flags)? If yes, explain: No

If yes, undergraduate studies must be informed of the proposed changes and their response included:

Person communicated with:

Date of communication:

Response:

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

5. COLLEGE/SCHOOL APPROVAL PROCESS

Department approval date: September 30, 2015

College approval date: September 30, 2015

Dean approval date: September 30, 2015; David Vanden Bout, Associate Dean

PROPOSED NEW CATALOG TEXT:

BACHELOR OF SCIENCE IN CHEMISTRY

[no changes]

Prescribed Work Common to All Options

[no changes]

Additional Prescribed Work for Each Option

Option I: Chemistry

[no changes]

Option II: Computation

[no changes]

Option III: Teaching

This option is designed to fulfill the course requirements for certification as a middle grade or secondary school science teacher in Texas; the student chooses one of the following areas: composite science certification with chemistry as the primary teaching field; physical sciences certification; or physical science, mathematics, and engineering certification. However, completion of the course requirements does not guarantee the student's certification. Information about additional teacher certification requirements is available from the UTeach-Natural Sciences academic adviser.

7. Mathematics 408C and 408D, or 408N, 408S, and 408M.

8. History 329U or Philosophy 329U.

9. One of the following sequences:

- a. For students seeking composition science certification: Physics 301, 101L, 316, and 116L; or Physics 303K, 103M, 303L, and 103N; or Physics 317K, 117M, 317L, and 117N. Science 365 [360 (Topic 4: *Physics by Inquiry*)] and Physics 108 (Topic: *Physics by Inquiry*) may substitute for Physics 316 and 116L, 317L and 117N, or 303L and 103N. Physics 108 is offered on the pass/fail basis.

- b. For students seeking either physical sciences certification or, mathematics, physical science, and engineering certification: Physics 301, 101L, 316, 116L, 315, and 115L; or 303K, 103M, 303L, 103N, 315, and 115L.
10. The requirements of one of the following certification areas:
- a. For composite science certification:
 - i. Biology 311C and 311D.
 - ii. Six hours of coursework in geological sciences; courses intended for non-science majors may not be counted toward this requirement.
 - iii. Enough additional approved coursework in biology, geological sciences, or physics to provide the required twelve hours in a second field.
 - iv. Chemistry 368 (Topic 1: *Research Methods: UTeach*) or, with the consent of the UTeach-Natural Sciences academic adviser, an upper-division chemistry course that includes a substantial research component.
 - v. In place of requirements 4c through 4f of the prescribed work above, the following courses, for a total of at least thirty-four semester hours of chemistry: Biochemistry 339F or 369; Chemistry 353; and 455 or 456.
 - b. For physical sciences certification:
 - i. Mathematics 427J or 427K and 427L.
 - ii. Chemistry 153K, 354L, and 154K.
 - iii. Chemistry 354 and three hours of upper-division coursework in physics.
 - iv. Chemistry 368 (Topic 1: *Research Methods: UTeach*) or, with the consent of the UTeach-Natural Sciences academic adviser, an upper-division chemistry course that includes a substantial research component.
 - v. In place of requirements 4c through 4f of the prescribed work above, the following courses, for a total of at least thirty-four semester hours of chemistry: Biochemistry 339F or 369; Chemistry 353, and 455 or 456.
 - c. For mathematics, physical science, and engineering certification:
 - i. Mathematics 315C, 360M or 375D (Topic: *Discovery: Introduction to Advanced Study in Mathematics*), 427J or 427K, and 333L.
 - ii. Chemical Engineering 379 (Topic: *Fundamentals of Engineering and Design*), 379 (Topic: *Engineering Energy Systems*), and Mechanical Engineering 379M (Topic: *Design of Machines and Systems*).
 - iii. Chemistry 368 (Topic 1: *Research Methods: UTeach*) or, with the consent of the UTeach-Natural Sciences academic adviser, an upper-division chemistry course that includes a substantial research component.
 - iv. In place of requirements 4c through 4f of the prescribed work above, the following courses, for a total of at least thirty semester hours in chemistry: Chemistry 353 and 153K, 455, and Biochemistry 369.
11. Eighteen semester hours of professional development coursework consisting of:
- a. Curriculum and Instruction 650S.
 - b. Curriculum and Instruction 365C or UTeach-Natural Sciences 350.
 - c. Curriculum and Instruction 365D or UTeach-Natural Sciences 355.
 - d. Curriculum and Instruction 365E or UTeach-Natural Sciences 360.
 - e. UTeach-Natural Sciences 101, 110, and 170.
12. Students seeking middle grades certification must complete the following courses: Educational Psychology 363M (Topic 3: *Adolescent Development*), or Psychology 301 and 304; and Curriculum and Instruction 339E.
13. Enough additional coursework, if needed, to make a total of 126 semester hours.

Option IV: Chemistry Honors

[no changes]

Special Requirements

[no changes]

Order and Choice of Work

Students are strongly recommended to take the chemistry/biochemistry–major sections of the following courses: Chemistry 301 or 301H (if taken), 302 or 302H, 128K, 128L, 328M, and 328N. Students planning a graduate program are strongly recommended to take Physics 301, 101L, 316, 116L, 315, and 115L.

Students in option II should consult the undergraduate adviser each semester regarding order and choice of work; those in option III should consult the UTeach-Natural Sciences academic adviser.

The following order of work is recommended as a typical minimum program for option I. It assumes that the student has high school credit in trigonometry, college algebra, and the first semester of general chemistry; is able to earn credit by examination for Chemistry 301; and is able to score well enough on the ALEKS placement examination to take Mathematics 408C or 408N in the first semester of the freshman year. Many students meet some of the following course requirements by credit by examination.

First year: Chemistry 302 or 302H, and 317; Mathematics 408C and 408D, or 408N, 408S, and 408M; Physics 301 and 101L, or 303K and 103M, or 317K and 117M (to be taken after Mathematics 408C or 408N); Rhetoric and Writing 306; six semester hours to fulfill core curriculum requirements.

Second year: Chemistry 128K, 128L, 328M, and 328N, or 220C, 320M, and 320N; any coursework needed to meet a core curriculum requirement; three semester hours to be counted toward requirement 4 of the prescribed work; English 316L, 316M, 316N, or 316P; Physics 316 and 116L, or 303L and 103N, or 317L and 117N; an upper-division mathematics course (such as Mathematics 427J or 427K) or an upper-division computer science course.

Third year: Biochemistry 339F or 369, Chemistry 353, 153K, 354L, 456; six semester hours of American and Texas government; six semester hours of American history; three semester hours of electives; a three-semester-hour course to fulfill a core curriculum requirement; three semester hours to be counted toward requirement 4 of the prescribed work.

Fourth year: Chemistry 431, 154K, 376K, and courses to fulfill requirement 3 of the prescribed work. The student must also take enough additional coursework to fulfill requirements 4, 5, 9, and 10 of the prescribed work. It is recommended that the majority of the elective courses taken to fulfill requirements 4 and 9 be chosen from upper-division courses in biology, chemistry, chemical engineering, mathematics, and physics.