

Impact Statement: Over the past semesters, 4 sections of CHEM 236 courses were taught each academic year (1 section in fall and 3 sections in spring) at 3 contact hours per section. Two sections of CHEM 328 were taught each fall semester at 3 contact hours per section. It is expected that in the new curriculum, 3 sections of CHEM 233 will be offered each academic year (1 in the fall and 2 in the spring) at 3 contact hours per section. (See attached staffing table.) This change will result in eliminating 6 faculty contact hours in the fall semester (from 9 contact hours in current curriculum to 3 contact hours in new curriculum) and eliminating 3 contact hours in the spring semester (from 9 contact hours in current curriculum to 3 contact hours in new curriculum) that will be redistributed to other courses in the chemistry curriculum. As lecture courses, there is no impact on Department of Chemistry budget.

There will be minimal and manageable impact on current students who have either taken these courses and not declared a major, or have declared a major and require these courses. Two courses (6 credit hours) are being deleted and will be replaced by one course (3 credit hours). One fewer course represents the elimination of a second semester course in General Chemistry, with the content being distributed among foundations courses, three of which appear in this document, the fourth appearing in a subsequent document. The following direct substitutions will be made for students who have either taken these courses and not declared a major, or have declared a major and require these courses.

- CHEM 236 (3 hours) will be replaced by CHEM 233 (3 hours)
- CHEM 328 (3 hours) will be replaced by CHEM 419 (3 hours)

A possible student impact will be that students who previously received a failing grade in these deleted courses will not have the opportunity to retake the course for a grade replacement.

Rationale: CHEM 236 and 328 courses are being deleted because they no longer reflect the direction of the departmental curriculum. The American Chemical Society certifies our majors and thus their Committee on Professional Training suggests the use of foundational courses with broader course content in the curriculum that can then be built upon with upper level in-depth courses. As a result, CHEM 236 and 328 are being integrated into a single new foundation course on inorganic chemistry (CHEM 233) offered at the 200 level. A few of the topics from CHEM 236 will be integrated into other new foundational courses for the major (CHEM 223 and 331). CHEM 233 is a course number from previous chemistry curricula and will be reused because the inorganic chemistry course content is similar to and at the same foundational level as CHEM 233 offered in previous chemistry curricula. The parenthetical name (General Chemistry II) is maintained so it is clear to graduate and professional programs outside of chemistry that the content and rigor is maintained as the 2nd-semester chemistry course in the curriculum.

2. **Delete:** On page 103, the entry for **CHEM 334:**

334 Physical Chemistry I (3)

A study of chemical phenomena using fundamental physical principles and methods of calculus. Topics include an introduction to quantum theory, molecular symmetry, atomic and molecular spectroscopy, and chemical kinetics. Prerequisites: CHEM 232; MATH 192; PHYS 221. Corequisite: CHEM 314. Fall.

Add: On page 103, in place of deleted entry, **CHEM 331:**

331 Foundations of Physical Chemistry (3)

An introduction to physical chemistry using fundamental physics principles with the tools of integral and differential calculus to understand chemistry phenomena. A focus is an understanding of the theoretical constructs of quantum, kinetics and thermodynamic principles with applications to spectroscopy and properties of gases, liquids and solids. Prerequisites: CHEM 145, 231, 233; MATH 192; PHYS 221. Fall.

Impact Statement: Over the past semesters, 1 section of CHEM 334 was taught each fall semester at 3 contact hours per section. It is expected that in the new curriculum, 1 section of CHEM 331 will be offered fall semester, taught by the same instructor. (See attached staffing table.) This change will result in no impact to faculty. As a lecture course, there is no impact on Department of Chemistry budget.

There will be minimal and manageable impact on current students who have either taken this course and not declared a major, or have declared a major and require this course. One course (3 credit hours) is being deleted and will be replaced by one course (3 credit hours). The following direct substitutions will be made for students:

- CHEM 334 (3 hours) will be replaced by CHEM 331 (3 hours)

A possible student impact will be that students who previously received a failing grade in this deleted courses will not have the opportunity to retake the course for a grade replacement.

Rationale: CHEM 331 serves as a foundation course for upper level chemistry courses in physical chemistry and quantum spectroscopy. The course content for CHEM 331 changed from our Physical Chemistry I course (CHEM 334) to allow for the new course to better serve as a foundation for upper level chemistry courses. The course content has not changed significantly from that of CHEM 331 from previous catalogs, thus allowing us to revert to the old course number used in a prior chemistry curriculum.

3. **Delete:** On page 104, the entry for **CHEM 436 and 437:**

436, 437 Biochemistry I, II (3, 3)

Lecture courses that deal with biochemistry from a chemistry perspective. The study begins with a review of properties of aqueous solutions and elements of thermodynamics and includes the study of the structures and functions of proteins, carbohydrates and lipids; an introduction to the properties, reaction kinetics and catalytic mechanisms of enzymes; metabolism; and the expression and transmission of genetic information. Completion of CHEM 336 prior to enrollment is recommended. CHEM 436 prerequisite: CHEM 334. CHEM 437 prerequisite: CHEM 436. CHEM 436: Fall. CHEM 437: Spring.

Add: On page 102, new entry, **CHEM 323, to replace CHEM 436:**

323 Foundations of Biochemistry (3)

Designed to approach the fundamentals of biochemistry from a chemical perspective, this course examines the structure and function of biological systems such as proteins, carbohydrates, and lipids; develops an understanding of the kinetics of biological reactions including metabolism and enzyme catalysis. It expands the study of biological equilibria and thermodynamics through the discussion of the properties of aqueous solutions, thermodynamics of enzyme binding and recognition, and oxidation and reduction processes. Prerequisites: CHEM 232, 233. Fall.

Add: On page 104, new entry to update **CHEM 437:**

437 Modern Biochemistry (3)

An in depth exploration of reaction kinetics and catalytic mechanisms of enzymes; metabolism; the expression and transmission of genetic information; and biological structural analysis with an emphasis on current research in the field. Prerequisites: CHEM 323, 331. Spring.

Impact Statement: Over the past semesters, 2 sections CHEM 436 courses were taught each fall semester at 3 contact hours per section, and 1 section of CHEM 437 was taught each spring semester at 3 contact hours per section. It is expected that in the new curriculum, 2 sections of CHEM 323 will be offered each academic year (1 in the fall and 1 in the spring) at 3 contact hours per section and 1 section of CHEM 437 will continue to be taught each spring semester at 3 contact hours per section. (See attached staffing table.) This change will result in no impact to faculty, except a shift of 3 contact hours from fall to spring semesters. As a lecture course, there is no impact on Department of Chemistry budget.

There will be minimal and manageable impact on current students who have either taken CHEM 436 and not declared a major, or have declared a major and require this course. One course (3 credit hours) is being deleted and will be replaced by one course (3 credit hours). The following direct substitutions will be made for students to allow for substitutions within the major at the 400 level:

- CHEM 436 (3 hours) will be replaced by CHEM 432 (3 hours)

A possible student impact will be that students who previously received a failing grade in this deleted course will not have the opportunity to retake the course for a grade replacement.

Rationale: CHEM 323 serves as a foundation course for upper level chemistry courses related to biochemistry and is now more accessible than CHEM 436 to pre-health students, regardless of their major, who need to meet biochemistry requirements for health professional schools. The course content has not changed significantly from that of CHEM 323 from previous catalogs, thus allowing us to revert to the old course number used in a prior chemistry curriculum.