

THE UNIVERSITY OF NORTH CAROLINA AT ASHEVILLE
FACULTY SENATE

Senate Document Number 4016S
Date of Senate Approval 1/14/16

Statement of Faculty Senate Action:

APC Document 32

Delete CHEM 332, 335, 336, 428, 440

Effective Date: Fall 2016

1. Delete: On pages 103, 104 and 105, the entries for **CHEM 332, 335, 336, 428 and 440:**

332 Instrumental Analysis (2)

Principles of analytical chemistry with emphases on instrumental methods and theory including potentiometry and electrolytic methods, molecular and atomic spectrochemical analysis, separation and derivatization methods, mass spectrometry, chromatography and electrophoresis. Methods of error reduction and experimental statistics are also included. Prerequisites: CHEM 237; and PHYS 222 or 231. Fall.

335 Physical Chemistry II (3)

A continuation of the study of chemical phenomena using fundamental physical principles and methods of calculus. Topics include the study of the kinetic theory of gases; thermodynamics of gases, liquids and solids; phase and chemical equilibrium; phase diagrams; diffraction techniques for solids; and statistical thermodynamics. Prerequisites: CHEM 314 and 334; corequisite: CHEM 315. Spring.

336 Bio-Organic Chemistry (3)

Designed specifically for science majors interested in biochemistry and molecular biology. The course begins to examine the chemistry of living systems by expanding upon the concepts discussed in organic chemistry in the context of biological systems. Topics will include non-covalent interactions and molecular recognition, catalyzed reactions, cofactors for biological reactions, energy storage in organic molecules, and the molecular basis for drug-action. Prerequisite: CHEM 232. Spring.

428 Computational Chemistry (3)

An introduction to the theory and practice of computational chemistry, including molecular mechanics, semi-empirical and ab initio molecular orbital theory, density functional theory, and molecular dynamics. Prerequisite: CHEM 335. Fall.

440 Physical Chemistry and Bioinformatics of Macromolecules (3)

Structure and function relationships of biological macromolecules from a physical and informatics perspective involving the study of structural transitions and intermolecular interactions as well as properties of macromolecular assemblies elucidated by the study of database mining techniques, molecular visualization techniques and physical techniques. Physical techniques will include optical spectroscopy, magnetic resonance, hydrodynamics, scattering and diffraction. Numerous methodologies of bioinformatics will be explored, focusing on answering questions in biochemistry, elucidating how structure/function questions map to computational problems and yield resulting solutions. Prerequisite: CHEM 436. Spring.

Impact Statement: Over the past semesters, each of these courses was taught once per academic year and is 3 contact hours each. Deleting these courses will eliminate 6 faculty contact hours in the fall semester and 9 faculty contact hours in the spring semester (see attached staffing table) that will be redistributed to other courses in the new chemistry curriculum. As lecture courses, there is no impact on the 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. The courses being deleted will be replaced in a subsequent document so that there is no net loss of hours for a student seeking a degree majoring in chemistry. The following direct substitutions will be made for students:

- CHEM 332 (2 hours) along with CHEM 314 (1 hour) will be replaced by CHEM 223 (3 hours)
- CHEM 335 (3 hours) will be replaced by CHEM 439 (3 hours)
- CHEM 336 (3 hours) will be replaced by CHEM 323 (3 hours)
- CHEM 428 (3 hours) will be replaced by CHEM 438 (3 hours)
- CHEM 440 (3 hours) will be replaced by CHEM 423 (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: Due to the creation of foundation courses and upper level focused content in Chemistry, these courses are no longer relevant and no longer required for the major. The course content is being distributed into new foundation courses and upper level electives.