

THE UNIVERSITY OF NORTH CAROLINA ASHEVILLE

FACULTY SENATE

Senate Document Number SD1924S

Date of Senate Approval 02/08/2024

Statement of Faculty Senate Action:

APC Document 12 (CHEM): **Petition for CHEM prefix and major credit hour exemption for BS Chemistry Major, required for major changes**

Effective Fall 2024

Per UNC Asheville [Senate document 2015F](#), the Department of Chemistry and Biochemistry would like to request an exemption for the CHEM prefix and major credit hour cap for the BS Chemistry Major to accommodate the curricular changes outlined in the proposed APC documents. Based on the data presented below, the requested increase in credit hours will have no impact on departmental resources or staffing and no impact on time to graduation for BS Chemistry Majors. This change will however allow the department to continue to satisfy the requirements for American Chemical Society (ACS) certification (Link to 2023 ACS Guidelines: <https://www.acs.org/content/dam/acsorg/education/standards-guidelines/approval-program/guidelines-draft-sept2022.pdf>) of the BS major and provide students with adequate GPA credit hours to reflect the work of the courses that are being changed (CHEM 380 (1-credit) into CHEM 395 (3-credits) and CHEM 312 (2-credits, two sections) into CHEM 317/318/319/320 (3-credits, two courses). Additionally, the BA chemistry major remains below the cap as an option for students who wish to graduate in fewer than 8 semesters, pre-health students, and students who double major in a non-science.

Exemption Request Criteria

1. Uses a table to compare the department's course titles, content, credit hours, and number of concentrations to the same at a minimum of 6 peer and aspirational schools. At least 4 of these schools must be chosen by the department from a list provided by APC and the remaining 2 schools may be chosen at the discretion of the department. Of the 4 chosen from APC's list, at least two must be from a list of public schools deemed comparable by both BOG and APC and at most 2 may be from a list of private schools deemed comparable by APC. The current lists are attached as Appendix A. APC will weigh multiple factors including, but not limited to, enrollment, number of faculty, Carnegie classification, retention, and 4-year graduation rates when considering the appropriateness of the comparisons with the schools chosen by the departments that are not on APC's list.

Response: See provided excel spreadsheet (Appendix A). Peer institutions examined: Furman University (BOG/APC Peer Private), Keene State College (Public), Fort Lewis College (Public), St. Mary's College of Maryland (BOG/APC Peer Public), SUNY Purchase College (BOG/APC Peer Public), University of Montevallo (Public), and Massachusetts College of Liberal Arts (BOG/APC Peer Public). Non-BOG/APC peer institutions were chosen because of their ACS certified degree programs and because they are members of COPLAC.

2. Provides a rationale for the number of concentrations and the number of courses and credit hours in each concentration (all concentrations, not just those over the caps). The rationale must include a component that is comparative in nature and makes use of the table described above.

Response: As detailed in the provided spreadsheet, the proposed credit hour increases for both the BA Chemistry and BS Chemistry (ACS certified) curriculum are in line with all of the examined peer institution in credit-hour and course progression. Specifically, our proposed BS ACS certified degree (62 credit hours) requires equal or fewer hours than the ACS certified BS Chemistry or Biochemistry degrees at Keene State College (BS Chemistry ACS certified = 64 credit hours), Fort Lewis College (BS Biochemistry ACS certified = 71 credit hours), and University of Montevallo (BS Chemistry ACS certified = 62 credit hours). It is also similar in credit hours to the non-ACS certified BS Chemistry/Biochemistry degrees at Furman University (61-68 credit hours) SUNY Purchase College (62 hours), and Massachusetts College of Liberal Arts (BS Chemistry = 60 credit hours, BS Chemistry with Biochemistry Focus = 64 credit hours).

Of the peer institutions examined only St. Mary's College of Maryland's BS Chemistry ACS certified degree requires fewer credit hours than our proposed degree. However, this degree does not include GPA credit hours for the required research project. Our degree also requires an independent undergraduate research project and thesis, and students complete this over 4 semesters in the CHEM 395 (previously CHEM 380), 416, 417, 418 sequence for a total of 7 credit hours.

The proposed BA Chemistry degree (56 credit hours), which is primarily taken by pre-health students, also roughly aligns in credit hours and course flexibility across disciplines as BS Biochemistry/BA Chemistry programs at Furman University (BS Biochemistry = 67-72 hours), Keene State College (BA Chemistry = 48 credit hours), St. Mary's College of Maryland (BS Biochemistry = 56 credit hours), and University of Montevallo (BS Chemistry with Biochemistry focus = 56 credit hours).

Finally, our proposed upper-level laboratory and research course sequence aligns with curricula at peer institutions. Specifically comparing our 6 credit hours of upper-level laboratories (CHEM 317/318/3159/320) to institutions who separate lecture and laboratory credits, Furman University has 6 credit hours of analogous laboratories, Keene State College has 8 credit hours of analogous laboratories, and Massachusetts College of Liberal Arts has 6 credit hours of analogous laboratories. For peer institutions that have research experiences embedded in the curriculum, which is a demonstrated high impact pedagogical practice, compared to our proposed 7 credit hours of research courses (CHEM 395, 416, 417, 418) for the BS Chemistry major only, Furman University has 3-7 credit hours of analogous research courses, Fort Lewis College has 3 credit hours of analogous research courses, SUNY Purchase College has 12 credit hours of analogous research courses, and University of Montevallo has 5-6 credit hours of analogous research courses.

3. Includes a 4-year semester-by-semester plan listing the department's anticipated course offerings and the instructors assigned to teach each section of each course. The purpose of the plan is to help APC understand the department's curricular needs and aid APC's assessment of the department's ability to deliver their proposed curriculum.

Response: See provided excel spreadsheet (Appendix B) for a detailed staffing plan for delivering the curriculum with the current staff and resources. The 4-year plan for students is below.

Chemistry Major - UNC Asheville (New Fall 2024)			
Sample Four-Year Plan - B.S. Degree			
Year 1 – Fall	CH	Year 1 - Spring	CH
FYS 178 (LAC)	4	CHEM 231 Organic Chemistry I	3
CHEM 132 General Chemistry I	3	CHEM 233 Foundations of Inorganic Chemistry	3
CHEM 111 General Chemistry Laboratory	1	CHEM 145 Quantitative Chemistry Laboratory	1
LANG 120 (LAC) Academic Writing and Critical Inquiry	4	MATH 191 (LAC Quantitative) Calculus I	4
MATH 167 (LAC Quantitative) Precalculus	4	HUM 124 (LAC) Global Humanities: Ancient Worlds	4
	16		15
Year 2 – Fall	CH	Year 2 – Spring	CH
CHEM 232 Organic Chemistry II	3	CHEM 223 Foundations of Analytical Chemistry	3
CHEM 222 Organic Chemistry Laboratory	2	CHEM 323 (LAC Scientific Perspectives) Foundations of Biochemistry	3
Social Science	4	PHYS 221 (LAC lab science) Physics I	4
MATH 192 Calculus II	4	HUM 214 (LAC) Global Humanities: Premodern Worlds (300-1700)	4
Elective	3		
	16		14
Year 3 – Fall	CH	Year 3 – Spring	CH
CHEM 331 Foundations of Physical Chemistry	3	CHEM 4xx 400-level CHEM course	3
CHEM 317/318/319/320 Interdisciplinary Chemistry Project Lab	3	CHEM 317/318/319/320 Interdisciplinary Chemistry Project Lab	3
CHEM 395 Chemical Research Methods and Ethics	3	CHEM 416 Chemical Research I	2
Second Language (LAC)	4	PHYS 231 or 222 Introductory Physics II or Physics 2	4
Elective	3	Elective	3
	16		15
Year 4 – Fall	CH	Year 4 – Spring	CH
CHEM 4xx 400-level CHEM course	3	CHEM 4xx 400-level CHEM course	3
CHEM 417 Chemical Research II	2	CHEM 418 Chemical Research III	2
ARTS 310 (LAC) Arts and Ideas	3	HUM 414 or LA 478 (LAC) Critical Perspectives on Contemporaneity or Cultivating Global Citizenship	4
HUM 324 or LA 378 (LAC) The Modern World: Mid 17 th to Mid-20 th Century or Race, Identity, Belonging, and Cultures in the Americas	4	Elective	3
Elective / DI / DI-R (LAC)	3	Elective / DI / DI-R (LAC)	3
	15		15

Chemistry Major - UNC Asheville (New Fall 2024)			
Sample Four-Year Plan - B.A. Degree			
Year 1 – Fall	CH	Year 1 - Spring	CH
FYS 178 (LAC)	4	CHEM 231 Organic Chemistry I	3
CHEM 132 General Chemistry I	3	CHEM 145 Quantitative Chemistry Laboratory	1
CHEM 111 General Chemistry Laboratory	1	MATH 191 (LAC Quantitative) Calculus I	4
LANG 120 (LAC) Academic Writing and Critical Inquiry	4	BIOL 136, ENVR 130, or Elective Principles of Cellular and Molecular Biology or Introduction to Environmental Science	3-4
MATH 167 (LAC Quantitative) Precalculus	4	HUM 124 (LAC) Global Humanities: Ancient Worlds	4
	16		15-16
Year 2 – Fall	CH	Year 2 – Spring	CH
CHEM 232 Organic Chemistry II	3	CHEM 223 Foundations of Analytical Chemistry	3
CHEM 222 Organic Chemistry Laboratory	2	PHYS 231 or 222 Introductory Physics II or Physics II	4
CHEM 233 Foundations of Inorganic Chemistry	3	HUM 214 (LAC) Global Humanities: Premodern Worlds (300-1700)	4
PHYS 221 (LAC lab science) Physics I	4	Second Language (LAC)	4
MATH 192 Calculus II	4		15
	16		
Year 3 – Fall	CH	Year 3 – Spring	CH
CHEM 331 Foundations of Physical Chemistry	3	CHEM 4xx, upper-level BIOL or upper- level ENVR	3
CHEM 323 (LAC Scientific Perspective) Foundations of Biochemistry	3	CHEM 317/318/319/320 Interdisciplinary Chemistry Project Lab	3
CHEM 317/318/319/320 Interdisciplinary Chemistry Project Lab	3	HUM 324 or LA 378 (LAC) The Modern World: Mid 17 th to Mid- 20 th Century or Race, Identity, Belonging, and Cultures in the Americas	4
Social Science (LAC)	3-4	Diversity Intensive / DI-R (LAC)	3-4
Elective	3		13-14
	15-16		
Year 4 – Fall	CH	Year 4 – Spring	CH
CHEM 4xx, upper-level BIOL or upper- level ENVR	3	CHEM 409 Chemical Literature Research Seminar	3
ARTS 310 (LAC) Arts and Ideas	3	HUM 414 or LA 478 (LAC) Critical Perspectives on Contemporaneity or Cultivating Global Citizenship	4
Elective / DI / DI-R (LAC)	3-4	Elective	5-9
Elective	5		
	14-15		12-16