

CURRICULUM GUIDE

Chemistry, B.S. (Biochemistry Concentration (with ACS Certification) + Chemistry, M.S. 2021-2022

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The schedule below is an **EXAMPLE** of how you can arrange your class schedule. Please consult your advisor for specific changes that may need to be made.

	Fall Semester	Spring Semester		
Freshman Year	SCO 100C	1	°BIO 111 (fulfills Gen. Ed. 4)	4
	CHE 111	3	CHE 112	3
	CHE 111L	1	CHE 112L	1
	§ °MAT 234 (fulfills Gen. Ed. 2)	4	MAT 244	4
	Gen. Ed. 1A (ENG 101)	3	Gen. Ed. 1B (ENG 102)	3
	Gen. Ed. 3A (Arts)	3	Gen. Ed. 1C (Oral Comm.)	3
Gen. Ed. 5A (History)	3			
TOTAL	18	TOTAL	18	
Sophomore Year	BIO 112	4	CHE 325	3
	CHE 250	2	CHE 325L	2
	CHE 361	3	CHE 362	3
	CHE 361L	1	CHE 362L	1
	°PHY 131 <u>or</u> 201 (fulfills Gen. Ed. 4)	5	CHE 385W	3
			PHY 132 <u>or</u> 202	5
TOTAL	15	TOTAL	17	
Junior Year	BIO 315	4	BIO 531	4
	CHE 425	3	CHE 411(ACCT), 495A/B (ACCT), <u>or</u> 501L	1
	CHE 425L	1	CHE 431	3
	CHE 430	3	CHE 432	1
	CHE 450	3	CHE 502	1
	Gen. Ed. 3B (Humanities)	3	CHE 715 (ACCT) (also fulfills MS requirement)	3
			CHE 715L (ACCT) (also fulfills MS requirement)	2
			Gen. Ed. 6 (Diversity)	3
TOTAL	17	TOTAL	18	
Senior Year	CHE 485	1	CHE 810	2
	CHE 770 (also fulfills MS requirement)	4	CHE 811 (course work or internship tracks) <u>or</u>	
	Gen. Ed. 5B (Soc. & Behav. Sci)	3	† 880 (Thesis track)	1
	Gen. Ed. 6 (Diversity)	3	CHE 822, 830, 850, <u>or</u> 860	3
	Free Elective	3	◊ 7xx Level Elective	3
	Free Elective	3		
(Undergraduate Complete = 120 hrs)				
TOTAL	17	TOTAL	9	
Senior +1	‡ CHE 811 <u>or</u> 895 (or combination)	1-2	CHE 822, 830, 850, <u>or</u> 860	3
	CHE 880	1	CHE 899 (Thesis track only)	(3)
	CHE 822, 830, 850, <u>or</u> 860	3	‡ CHE 839 (Internship track only)	(3)
	CHE 811 <u>or</u> 895 (Course Work and Internship tracks)	(1)	CHE 8xx Elective (Course Work track only)	(3)
	CHE 899 (Thesis track only)	(3)	GRD 858b (Thesis or Internship tracks only-Exit Requirement)	0
	‡ CHE 839 <u>or</u> 700/800 Level CHE course (Internship track only)	(3)	GRD 858C (Course Work track only-Exit Requirement)	0
	CHE 7xx/8xx Elective (Course Work track only)	(3)		
TOTAL	9	TOTAL	6	
TOTAL HOURS TO DEGREE COMPLETION		144		

* **PREREQUISITES:** Consult with your advisor and/or the University catalog regarding prerequisites for upper division CHE courses. MAT 122 (see § below); PHY 131 and/or 201. See University catalog for details.

§ A preparatory course in mathematics may be required before admission to MAT 234.

† 1 hour taken if in Thesis Track. Two hours taken if in Applied and Coursework Tracks.

Upper division courses: All students are required to have a minimum of 42 hrs. upper division (300 level or above) courses distributed throughout Major/Supporting/Gen Ed/Free Electives categories.

Refer to the University Catalog at <http://www.catalogs.eku.edu/> regarding University and General Education Requirements. All baccalaureate degree seeking students who enter the University are required to successfully complete one writing intensive course following completion of the ENG 102, ENG 105, or HON 102/103. Writing intensive courses are designated with the suffix "W" following the course prefix and number (e.g. HUM 300W).

Applied Critical & Creative Thinking (ACCT) Requirement: Chemistry majors will fulfill ACCT with: CHE 411, 495A, 495B, 515 or 715 (Credit hours are incorporated into program requirements.)

M.S. Exit Requirements: THESIS/INTERNSHIP OPTION: A thesis/report based upon the original research project in the area of the student's research emphasis must be submitted. A final comprehensive oral examination (GRD 858b) in defense of the thesis/report and related course work is required. **COURSEWORK OPTION:** Candidates must earn a 3.0 GPA (or higher) for all program coursework for the option. In addition, the candidate for the coursework option must pass a final examination (GRD 858c). The committee will decide the format of the examination.

Undergraduate students in the 3+2 who have applied for graduation for their baccalaureate degree, applied for admission to the Graduate School, and are enrolled in at least 3 hours of eligible coursework will be eligible for support as a graduate assistant. GA support is limited to one semester in a 3+2 program and no more than 4 semesters (excluding summers) for the combined 3+2 and master's degree program. In order to qualify, students may not be signed up for more than 15 credit hours combined (graduate and undergraduate).

Course Number	Course Name
GENERAL EDUCATION & UNIVERSITY REQUIREMENTS (37)	
SCO 100C	Student Success Seminar (1)
CORE COURSE REQUIREMENTS (26)	
CHE 111	General Chemistry I (3)
CHE 111L	General Chemistry Lab I (1)
CHE 112	General Chemistry II (3)
CHE 112L	General Chemistry Lab II (1)
CHE 250	Descriptive Inorganic Chemistry (2)
CHE 325	Analytical Chemistry (3)
CHE 325L	Analytical Chemistry Lab (2)
CHE 361	Organic Chemistry I (3)
CHE 361L	Organic Chemistry Lab I (1)
CHE 362	Organic Chemistry II (3)
CHE 362L	Organic Chemistry Lab II (1)
CHE 430	Biochemistry of Macromolecules (3)
Bracketed items must be taken concurrently.	
BIOCHEMISTRY CONCENTRATION REQUIREMENTS (26)	
CHE 385W	Chemical Literature (writing intensive) (3)
CHE 425	Instrumental Analysis (3)
CHE 425L	Instrumental Analysis Lab (1)
CHE 431	Metabolic Biochemistry (3)
CHE 432	Biochemistry Laboratory (1)
CHE 450	Inorganic Chemistry (3)
CHE 485	Chemistry Seminar (1)
CHE 502	Polymers & Particles (1)
CHE 715	Synthetic & Analytical Methods (3)
CHE 715L	Synthetic & Analytical Methods Lab (2)
CHE 770	Biophysical Chemistry (4)
PLUS ONE (1) HOUR selected from:	
CHE 411	Practicum (1-3)
CHE 495A <u>and/or</u>	Independent Chemical Research (1)
CHE 495B	Chemistry Lab. Ind. Research: ____ (1-3)
CHE 501L	Chemtopics Lab: ____ (3)
CHE 495A and/or 495B is recommended. With all specified courses, this program option produces a degree certified by the American Chemical Society (ACS) and follows the recommendation from the American Society for Biochemistry and Molecular Biology (ASBMB).	
BIOCHEMISTRY CONCENTRATION SUPPORTING COURSE REQUIREMENTS (25)	
° BIO 111	Cell and Molecular Biology (4)
BIO 112	Ecology and Evolution (4)
BIO 315	Genetics (4)
BIO 531	Principles of Molecular Biology (4)
° MAT 234	Calculus I (4)
MAT 244	Calculus II (4)
° PHY 131 <u>or</u>	College Physics I (5)
° PHY 201 (recommended)	University Physics I (5)
PHY 131 <u>or</u>	College Physics II (5)
PHY 202 (recommended)	University Physics II (5)
Two semesters of Calculus are highly recommended, and calculus based (PHY 201 and 202) is recommended by the ACS and ASBMB.	
FREE ELECTIVES (6)	
M.S. CHEMISTRY REQUIREMENTS	
CORE COURSE REQUIREMENTS (24) (33 total; Nine (9) credits from CHE 715/715L (5) and 770 (4) are counted in the undergraduate program)	
CHE 715	Synthetic & Analytical Methods (3)
CHE 715L	Synthetic & Analytical Methods Lab (2)
CHE 770	Biophysical Chemistry (4)
CHE 810	Professional Training (3)
‡ CHE 811	Chemistry Practicum (1-2)
CHE 880	Graduate Seminar (1)
‡ Graduate students are required to have a minimum of 2 credit hours from CHE 811, 895 or a combination.	
♦ PLUS THREE (3) HOURS of 700 level CHE, BIO, MAT, or other science course.	
PLUS ONE (1) additional HOUR of:	
‡ CHE 811	Chemistry Practicum (1)
CHE 880	Graduate Seminar (1)
CHE 895	Independent Research in Chemistry (1-3)
PLUS THREE (3) COURSES selected from the following:	
CHE 822	Advanced Analytical Chemistry (3)
CHE 830	Applied Biochemistry (3)
CHE 850	Advanced Inorganic Chemistry (3)
CHE 860	Advanced Organic Chemistry (3)
Graduate Students must also select ONE (1) of the following tracks:	
+ THESIS TRACK: Graduate Research (Written Thesis Required) CHE 899: Thesis (6 hrs.)	
+ INTERNSHIP TRACK: Applied Learning in Chemistry (Written Report Req.) ‡ CHE 839: Applied Learning in Chemistry (6 hrs) <u>OR</u> ‡ CHE 839 (3 hrs.) PLUS THREE (3) hours 700/800 Level Courses	
+ COURSEWORK TRACK THREE (3) HOURS CHE 800 Level courses PLUS THREE (3) HOURS 700/800 Level Courses (6 hrs.)	

° Denotes that 3 credit hours from this course are/can be applied to fulfill a Gen. Ed. requirement.