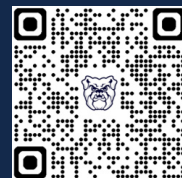


CLOWES DEPARTMENT OF CHEMISTRY AND BIOCHEMISTRY

GALLAHUE HALL 350

butler.edu/arts-sciences/chemistry-biochemistry



Old Chemistry Major

*Students matriculating into Butler
August 2020 – July 2023*

Required courses and required allied courses

CH105-6 or CH107	General Chemistry (8/5 cr)
CH351-2	Organic Chemistry 1 & 2 (8 cr)
MA106	Calculus 1 (4 cr)
PH107 or PH201	Physics 1 (4/5 cr)
PH108 or PH202	Physics 2 (4/5 cr)

Three 300-level courses from the following list:

CH321	Analytical Chemistry
CH331	Inorganic Chemistry
CH361	Introduction to Biochemistry
CH362	Biochemistry 1
CH371	Physical Chemistry

One 400-level lecture course from the following list:

CH422	Analytical Chemistry 2
CH431	Inorganic Chemistry 2
CH451	Advanced Organic Chemistry
CH462/CH464	Biochemistry 2
CH472	Physical Chemistry 2
CH4x9	Special Topics in Chemistry
CH425	Environmental Chemistry

One 400-level laboratory course from the following list:

CH 424	Instrumental Analysis Laboratory
CH 433	Inorganic Chemistry Laboratory
CH 453	Advanced Organic Chemistry Laboratory
CH 463	Biochemistry Laboratory 2
CH 473	Physical Chemistry Laboratory

One 400-level three hour societal topics course from the following list:

CH408	Chemistry in Our Lives
CH418	Chemistry and Global Issues

Current Chemistry Major

*Students matriculating into Butler
after August 1, 2023*

Required allied courses (16-18 cr)

MA106-7	Calculus 1 & 2 (8 cr)
PH107 or PH201	Physics 1 (4/5 cr)
PH108 or PH202	Physics 2 (4/5 cr)

Strictly Required CH courses (26-29 cr)

CH190	Modern Issues in Chemistry (1 cr)
CH105-6 or CH107	General Chemistry (8/5 cr)
CH321	Analytical Chemistry (3 cr)
CH331	Inorganic Chemistry (3 cr)
CH351-2	Organic Chemistry 1 & 2 (8 cr)
CH361	Introduction to Biochemistry (3 cr)
CH371	Physical Chemistry (3 cr)

One 400-level lecture course from the following list: (3-5 cr)

CH422	Analytical Chemistry 2 (3 cr)
CH431	Inorganic Chemistry 2 (3 cr)
CH451	Advanced Organic Chemistry (3 cr)
CH462/CH464	Biochemistry 2 (3 cr)
CH472	Physical Chemistry 2 (3 cr)
CH4x9	Special Topics in Chemistry (3 cr)
CH425	Environmental Chemistry (3 cr)

One 400-level laboratory course from the following list: (3 cr)

CH 424	Instrumental Analysis Laboratory (3 cr)
CH 433	Inorganic Chemistry Laboratory (3 cr)
CH 453	Advanced Organic Chemistry Laboratory (3 cr)
CH 463	Biochemistry Laboratory 2 (3 cr)
CH 473	Physical Chemistry Laboratory (3 cr)

One 400-level three hour societal topics course from the following list: (3 cr)

CH408	Chemistry in Our Lives (3 cr)
CH418	Chemistry and Global Issues (3 cr)



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COLLEGE *of* LIBERAL ARTS *and* SCIENCES

ENGAGE

• CONNECT

• BELONG

American Chemical Society Certification

Course Requirements

Allied courses

MA106-7	Calculus 1 & 2 (8 cr)
PH107 or PH201	Physics 1 (4/5 cr)
PH108 or PH202	Physics 2 (4/5 cr)

Introductory Courses

CH105-6 or CH107 General Chemistry (8/5 cr)

Five Foundational Courses from the following list:

CH321	Analytical Chemistry (3 cr)
CH331	Inorganic Chemistry (3 cr)
CH351	Organic Chemistry 1 (4 cr)
CH361	Introduction to Biochemistry (3 cr)
CH371	Physical Chemistry (3 cr)

Four in-depth courses from the following list:

CH352	Organic Chemistry 2 (4 cr)
CH362	Biochemistry 1 (3 cr)
CH422	Analytical Chemistry 2 (3 cr)
CH425	Environmental Chemistry (3 cr)
CH431	Advanced Inorganic Chemistry (3 cr)
CH451	Advanced Organic Chemistry (3 cr)
CH462/CH464	Biochemistry 2 (3 cr)
CH472	Physical Chemistry 2 (3 cr)
CH4x9	Special Topics in Chemistry (3 cr)

Laboratory Experience Required

350 laboratory hours spread across four of the following five areas:

- 1) Analytical Chemistry courses with labs:
CH321 (42/350 lab hours)
CH424 (56/350 lab hours)
- 2) Biological Chemistry courses with labs:
CH363 (42/350 lab hours)
CH463 (56/350 lab hours)
- 3) Inorganic Chemistry courses with labs:
CH433 (56/350 lab hours)
- 4) Organic Chemistry courses with labs:
CH351 (42/350 lab hours)
CH352 (42/350 lab hours)
CH453 (56/350 lab hours)
- 5) Physical Chemistry courses with labs:
CH473 (56/350 lab hours) (may be repeatable)

Other Laboratory Research (up to 130/350 lab hours):

- Area depends on expertise of the supervising faculty member
- **Any research experience from this category must be documented with a final report***
CH493 (42/350 lab hours for each semester enrolled)
CH494 (84/350 lab hours for each semester enrolled)

Non-credit Summer research**

*A student using CH493/4 research to meet the ACS-certification requirements must prepare a well written, comprehensive, and well-documented research report, including safety considerations where appropriate. Thorough and current references to peer-reviewed literature play a critical role in establishing the overall scholarship of the report. One report is required per research project (i.e. only one report is required for an ongoing project pursued over multiple semesters). A completed honors thesis can qualify as this report. No presentations (oral, poster) nor journal article co-authorship substitute for the student writing a comprehensive report. Non-thesis reports should be prepared as part of CH411 independent study credit under the faculty mentor.

** Students pursuing Summer research under the direction of a Butler Chemistry and Biochemistry faculty member can fold that research into a CH411 report or honors thesis (CH499). Students pursuing Summer research outside of the department must 1) have a faculty member of the Chemistry and Biochemistry department with subdiscipline-specific expertise certify that the research should count in one of the five fundamental areas defined above. The student should complete either a thesis advised by that faculty member, or complete the above report as part of CH411 under that faculty member.



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