Biochemistry Major

The Biochemistry major is offered through the Department of Chemistry and Biochemistry. This option is recommended for students planning entry into graduate school in Biochemistry, Pharmacology, or related subjects. It is also strongly recommended for those desiring to pursue medical or dental school. *Ten (10) lecture courses and seven (7) laboratory courses in the content area (chemistry and /or biochemistry) are required for graduation.*

First Year

Fall Semester		Spring Semester	
General Chemistry I for Majors (CHE111)	3	General Chemistry II for Majors (CHE112)	3
General Chemistry I Lab for majors/Recitation	1	General Chemistry II Lab for majors/Recitation	1
Pre-Calculus (MAT116 or 120)	3-4	ADW112	4
First Year Composition	4	Calculus I (MAT231)	4
ADW111	4	World Language 201	4
First Year Experience	1	Interdisciplinary Big Question Colloquia#	1
First Year Seminar in Chemistry (CHEM101)	0	First Year Experience	1
Total Credits	16-17	Total Credits	18

Second Year

Fall Semester		Spring Semester	
Organic Chemistry I for Majors (CHE231)	4	Organic Chemistry II for Majors (CHE232)	4
Organic Chemistry I Lab/Recitation (CHE233L)	1	Organic Chemistry II Lab/Recitation (CHE234L)	1
Biology of the Cell (BIO120)	4	Organismal Form and Function (BIO115)	4
Calculus II (MAT232)	4	Physics I: Mechanics and Lab (PHY151)	4
World Language 202	4	Wellness	0
		Braven Leadership*	3
Total Credits	17	Total Credits	16

Junior Year

Fall Semester		Spring Semester	
Biochemistry I (CHE311)	4	Biochemistry II (CHE312) +Lab (CHE313L)	4
Wellness	0	Physical Chemistry II (CHE346)	3
Physical Chemistry I (CHE345)	3	Physical Chemistry II Lab	1
Physics II Elec/Mag& Lab (PHY241)	4	Divisional Requirement 2	4
Divisional Requirement I	4	Computer Science I C++[5] (CIS121)	4
Total Credits	15	Total Credits	16

Senior Year

Fall Semester		Spring Semester	
Analytical Chemistry (CHE301)[1]	3	Instrumental Analysis (CHE496)	4
Analytical Chemistry Lab (CHE301L)[1]	1	Women's or International Studies	4
Advanced Biochemistry (CHE446)	3	Math[2] or Biology Elective[3]	4
Undergraduate Research (CHE431)	1-3	Undergraduate Research (CHE432)	1-3
Senior Seminar in Chemistry (CHE429)	1	Elective[6]	3-4
Divisional Requirement 3	4		
Total Credits	13-15	Total Credits	16-19

**Students may request a 2 credit Braven course. See Office of Undergraduate Studies.

[1] Can take either Analytical Chemistry Lecture and Lab (CHE 301 and 301L) or Instrumental Analysis (CHE 496)
[2] Math Electives include: Calculus III, Biostatistics, Linear Algebra or Differential Equations
[3] Biology Electives include: Cellular & Molecular Biology, Genetics, Microbiology, Physiology, or other advanced or graduate level course.
[4] Can substitute with Race and Genetics (CHE 405)
[5] Other CIS options include CIS 111, 115
[6] Chemistry or Biochemistry elective recommended
#May be taken either semester.

Chemistry Major - BS

This option is recommended for those students seeking entry into graduate school in Chemistry and related fields. *Ten (10) lecture courses and seven (7) laboratory courses in the content area (chemistry/biochemistry) are required for graduation*

First Year

Fall Semester		Spring Semester	
General Chemistry I for Majors (CHE111)	3	General Chemistry II for Majors (CHE112)	3
General Chemistry I Lab for majors/Recitation	1	General Chemistry II Lab for majors/Recitation	1
Pre-Calculus (MAT116 or 120)	3-4	ADW112	4
First Year Composition	4	Calculus I (MAT231)	4
ADW111	4	World Language 201	4
First Year Experience	1	Interdisciplinary Big Question Colloquia[#]	1
First Year Seminar in Chemistry (CHE 101)	0	First Year Experience	1
Total Credits	16-17	Total Credits	18

Second Year

Fall Semester		Spring Semester	
Organic Chemistry I for Majors (CHE231)	4	Organic Chemistry II for Majors (CHE232)	4
Organic Chemistry I Lab/Recitation (CHE233L)	1	Organic Chemistry II Lab/Recitation (CHE234L)	1
Physics I: Mechanics & Lab (PHY151)	4	Computer Science I C++ (CIS121)[2]	4
Calculus II (MAT232)	4	Physics II: Elec/Mag& Lab	4
World Language 202	4	Wellness	0
		Braven Leadership*	3
Total Credits	18	Total Credits	16

Junior Year

Fall Semester		Spring Semester	
Differential Equations (MAT365)[1]	4	Physical Chemistry II (CHE346)	3
Analytical Chemistry (CHE301)	3	Physical Chemistry Lab (CHE346)	1
Analytical Chemistry Lab (CHE301L)	1	Instrumental Analysis (CHE496)	4
Physical Chemistry (CHE345)	3	Divisional Requirement 2	4
Divisional Requirement I	4	Wellness	0
Total Credits	15	Total Credits	12

Senior Year

Fall Semester		Spring Semester	
Inorganic Chemistry (CHE421)	3	Biochemical Principles (CHE410)	3
Inorganic Chemistry Lab (CHE421L)	1	Elective	4
Women's or International Studies	4	Senior Seminar in Chemistry	1
Undergraduate Research (CHE431)[3]	1-3	Divisional Requirement 3	4
Chemistry Elective	4		
Total Credits	13-15	Total Credits	12

#May be taken either semester

*Students may request a 2 credit Braven course. See Office of Undergraduate Studies.

1 Course strongly recommended.

2 Other CIS options include CIS 111, 115

3 Course strongly recommended.

Chemistry –BS - ACS certification

This option is approved by the American Chemical Society (ACS) and recommended for those students seeking entry into graduate school in Chemistry and related fields. *Ten (10) lecture courses and seven (7) laboratory courses in the content area (chemistry and/or biochemistry) are required for graduation. However, this option requires an additional advanced chemistry elective to be taken beyond the 10 lecture courses required for graduation.*

First Year

Fall Semester		Spring Semester	
General Chemistry I for Majors I (CHE111)	3	General Chemistry II for Majors (CHE112)	3
General Chemistry I Lab for majors/Recitation	1	General Chemistry II Lab for majors/Recitation	1
Pre-Calculus (MAT116 or 120)	3-4	ADW112	4
First Year Composition	4	Calculus I (MAT231)	4
ADW111	4	World Language 201	4
First Year Experience	1	Interdisciplinary Big Question Colloquia#	1
First Year Seminar in Chemistry (CHEM101)	0	First Year Experience	1
Total Credits	16-17	Total Credits	18

Second Year

Fall Semester		Spring Semester	
Organic Chemistry I for Majors (CHE231)	4	Organic Chemistry II for Majors (CHE232)	4
Organic Chemistry I Lab/Recitation (CHE233L)	1	Organic Chemistry II Lab/Recitation (CHE234L)	1
Physics I: Mechanics & Lab (PHY151)	4	Computer Science I C++ (CIS121)[2]	4
Calculus II (MAT232)	4	Physics II: Elec/Mag& Lab (PHY241)	4
World Language 202	4	Wellness	0
		Braven Leadership* (either semester)	3
Total Credits	17	Total Credits	16

Junior Year

Fall Semester		Spring Semester	
Differential Equations (MAT365)[1]	4	Physical Chemistry II (CHE346)	3
Analytical Chemistry (CHE301)	3	Physical Chemistry Lab (CHE346)	1
Analytical Chemistry Lab (CHE301L)	1	Instrumental Analysis (CHE496)	4
Physical Chemistry (CHE345)	3	Divisional Requirement 2	4
Divisional Requirement I	4	Elective	4
Wellness	0		
Total Credits	15	Total Credits	16

Senior Year

Fall Semester		Spring Semester	
Inorganic Chemistry (CHE421)	3	Biochemical Principles (CHE410)	3
Inorganic Chemistry Lab (CHE421L)	1	Adv. Chem Elective	3-4
Women's or International Studies	4	Senior Seminar in Chemistry	1
Undergraduate Research (CHE431)	3	Divisional Requirement 3	4
Elective	3-4	Undergraduate Research (CHE432)	3
Total Credits	14-15	Total Credits	14-15

*Students may request a 2 credit Braven course. See Office of Undergraduate Studies.

[#]Either semester

[1]Course strongly recommended.

[2] Other CIS options include CIS 111, 115

Chemistry- BS Dual Degree

This option is recommended for those desiring to transition into a partner institution to complete a degree in Chemical Engineering. *Ten (10) lecture courses and seven (7) laboratory courses in the content area (chemistry and/or biochemistry) are required for graduation. Eight (8) of the required ten (10) Chemistry content courses are listed in this sequence; the remaining two required Chemistry courses will be taken at the engineering institution upon approval.*

First Year

Fall Semester		Spring Semester	
General Chemistry I for Majors (CHE111)	3	General Chemistry II for Majors (CHE112)	3
General Chemistry I Lab for majors/Recitation	1	General Chemistry II Lab for majors/Recitation	1
Calculus (MAT231))	4	ADW112	4
First Year Composition	4	Calculus II (MAT232)	4
ADW111	4	World Language 201	4
First Year Experience	1	Interdisciplinary Big Question Colloquia#	1
First Year Seminar in Chemistry (CHEM101)	0	First Year Experience	1
Introduction to Engineering (ERG101)	2	Engineering Graphics (ERG102)	3
Total Credits	19	Total Credits	21

Second Year

Fall Semester		Spring Semester	
Organic Chemistry I for Majors (CHE231)	4	Organic Chemistry II for Majors (CHE232)	4
Organic Chemistry I Lab/Recitation (CHE233L)	1	Organic Chemistry II Lab/Recitation (CHE234L)	1
Physics I: Mechanics & Lab (PHY151)	4	Calculus III (MAT324)	4
Computer Science I C++ (CIS121)[3]	4	Physics II: Elec/Mag& Lab (PHY241)	4
World Language 202	4	Wellness	0
		Braven Leadership* (either semester)	3
Wellness	0	Divisional Requirement 1 (Humanities)	4
Total Credits	17	Total Credits	20

Junior Year

Fall Semester		Spring Semester	
Physical Chemistry (CHE345)	3	Physical Chemistry II (CHE346)	3
Differential Equations (MAT365)[1]	4	Physical Chemistry II Lab (CHE346)	1
Inorganic Chemistry (CHE421)	3	Instrumental Analysis (CHE496)	4
Inorganic Chemistry Lab (CHE421L)	1	Divisional Requirement 3[2]	4
Physics III: Optics and Lab (PHY242)[1]	4	Women's/International Studies	4
Divisional Requirement 2 (Fine Arts)	4	Linear Algebra (MAT214)	4
Total Credits	19	Total Credits	20

Senior Year

Eight (8) of the required ten (10) Chemistry content courses are listed in this sequence; the remaining two required Chemistry courses will be taken at the engineering institution upon approval.

*Students may request a 2 credit Braven course. See Office of Undergraduate Studies.

#Either semester
[1]If attending Georgia Tech, Physics III is not required.
[2] Must be a course in American History or either Microeconomics or Macroeconomics.
[3]Other CIS options include CIS111, 115

Chemistry – Teaching Certification in Secondary Education

First Year

Fall Semester		Spring Semester	
General Chemistry I for Majors ICHE111)	3	General Chemistry I for Majors ICHE112)	3
General Chemistry I Lab for majors/Recitation	1	General Chemistry I Lab for majors/Recitati on	1
Pre-Calculus (MAT116 or 120)	3-4	ADW112	4
First Year Composition	4	Calculus I (MAT231)	4
ADW111	4	Discovering Computer Science (CIS111)	4
First Year Experience	1	Interdisciplinary Big Question Colloquia#	1
First Year Seminar in Chemistry (CHEM101)	0	First Year Experience	1
Wellness	0		
Total Credits	16-17	Total Credits	18

Second Year

Fall Semester		Spring Semester	
Organic Chemistry I for Majors (CHE231)	4	Organic Chemistry II for Majors (CHE232)	4
Organic Chemistry I Lab/Recitation (CHE233L)	1	Organic Chemistry II Lab/Recitation (CHE234L)	1
Calculus II (MAT232)	4	Physics I & Lab (PHY151)	4
Educational Psychology	4	Divisional Requirement I	4
Orientation to Education	4	Adolescent Psychology (Social Science PSY304)	4
Braven Leadership* (either semester)	3		
Total Credits	19-20	Total Credits	17

Junior Year

Fall Semester		Spring Semester	
Introduction to Environmental Science (ES211, 211L)	4	Biochemical Principles (CHE410)	4
Physics II: Elec/Mag & Lab (PHY241)	4	Divisional Requirement 2 (Women's/International Studies)	4
Divisional Requirement 2	4	Curriculum & Methods for Secondary	4
Wellness	0	Exceptional Children (EDU316)	4
Physical Chemistry (CHE345)	3		
Total Credits	15	Total Credits	16

Senior Year

Fall Semester		Spring Semester	
Inorganic Chemistry (CHE421)	3	Student Teaching (EDU458)	12
Inorganic Chemistry Lab (CHE421L)	1	Seminar II (EDU452)	2
Analytical Chemistry (CHE301)	3		
Analytical Chemistry Lab (CHE301L)	1		
Chemistry Elective	4		
Seminar for Student Teaching (EDU451)	3		
Senior Seminar (CHE429)	1		
Total Credits	16	Total Credits	14

#Either Semester

* Students may request a 2 credit Braven course. See Office of Undergraduate Studies.

CHEMISTRY MAJOR BS – Cosmetic Chemistry*

The track is recommended for those students interested in careers in the cosmetics and personal care field. The track is also appropriate for those interested in graduate studies in chemistry and related field. Ten (10) lecture courses and seven (7) laboratory courses in chemistry and cosmetic science are required to fulfill the major.

Courses not required but strongly recommended: Undergraduate Research (CHE432), Differential Equations (MAT365), or Data Science.

First Year

Fall Semester		Spring Semester	
General Chemistry I for Majors (CHE111)	3	General Chemistry II for Majors (CHE112)	3
General Chemistry I Lab/Recitation (CHE111L)	1	General Chemistry II Lab/Recitation (CHE112L)	1
Precalculus (MAT116 or MAT120)	3-4	Calculus I (MAT231)	4
First Year Composition (ENG103)	4	African Diaspora/World II (ADW112)	4
African Diaspora/World I (ADW111)	4	Big Questions Colloquia (BQC100)	1
First Year Seminar in Chemistry (CHE101)	0	First-Year Experience (FYE 102)	1
First-Year Experience (FYE 101)	1	Wellness & Health	0-1
Total Credits	16-17	Total Credits	14-15

Sophomore Year

Fall Semester		Spring Semester	
Organic Chemistry I for Majors (CHE231)	4	Organic Chemistry II for Majors (CHE232)	4
Organic Chemistry I Lab/Recitation (CHE233L)	1	Organic Chemistry II Lab/Recitation (CHE233)	1
Physics I: Mechanics & Lab (PHY151)	4	Physics II: Elec/Mag & Lab (phy241)	4
Calculus II (MAT 232)	4	Computer Science I – C++ (CIS121)[1]	4
Braven Leadership*	3	Survey of Beauty and Cosmetics (COS212)	1
Wellness & Health	0-1		
Total Credits	13-14	Total Credits	14

Junior Year

Fall Semester		Spring Semester	
Physical Chemistry I (CHE345)	3	Divisional Requirement 2	4
Analytical Chemistry (CHE301)	3	Cosmetic Chemistry (COS326)	3
Analytical Chemistry Lab Elective (CHE301L)	1	Cosmetic Formulations (COS326L)	1
Foreign Language (FL201)	4	Cosmetic Science Elective[2]	4
Divisional Requirement 1	4	Foreign Language (FL202)	4
Total Credits	15	Total Credits	16

Senior Year

Fall Semester		Spring Semester	
Biochemistry 1 (CHE311)	3	Chemistry Elective[3]	3
Chemistry of Natural Products (CHE452)	3	Chemistry Seminar (CHE429)	1
Cosmetic Science Elective	4	Women's or International Studies	4
Women's or International Studies	4	Divisional Requirement 3	4
Oil and Fragrance Chemistry (COS425L)	1	Black Hair Lab (COS426L)	1
Undergraduate Research in Chemistry	0-2	Undergraduate Research in Chemistry	0-4
Total Credits	15-17	Total Credits	13-17

*Students may request a 2 credit Braven course. See Office of Undergraduate Studies.

*Effective Fall 2024

1. Other CIS options include Discovering Computer Science (CIS 111), Computing and Informatics (CIS 115)
2. Current Cosmetic Science Electives include Entrepreneurial Mindset, Women in Entrepreneurship, Principles of Marketing, Health Economics, and Psychology of Beauty.
3. Chemistry Electives Recommended: Chemistry and Physics of Materials, Polymer Chemistry, or Environmental Chemistry

Chemistry –BS - Cosmetic Science Minor

The Cosmetic Science Minor requires 18 credit hours

General Chemistry I Lecture and Lab (CHE111/111L)

General Chemistry II Lecture and Lab (CHE112/112L)

Organic Chemistry I Lecture and Lab (CHE231/233)

Survey of Beauty and Cosmetics (COS212)

Cosmetic Chemistry (COS326), and Cosmetic Formulations (COS326L)

Current Cosmetic Science Electives include

Entrepreneurial Mindset

Women in Entrepreneurship

Principles of Marketing

Health Economics

Psychology of Beauty

Students whose majors require General and Organic Chemistry cannot declare a cosmetic science minor.