CHEMISTRY MAJOR

Major Requirements for the B.A. Degree in Chemistry

Requirements for the major include the completion of a sequence of introductory and advanced courses in chemistry that introduce students to the main areas of study in chemistry. Coursework in the related fields of mathematics and physics is also required to prepare students for upper-level courses in chemistry. For the Bachelor of Arts in chemistry, students must complete at least 36 credit hours in chemistry, among which must be included the courses listed below. For the Bachelor of Science in chemistry, students must complete 45 credit hours in chemistry, among which must be included the courses listed below.

Required Courses

Code	Title	Credits
CHEM 111	Chemical Principles I	4
CHEM 112	Chemical Principles II	4
CHEM 231	Organic Chemistry I	4
CHEM 232	Organic Chemistry II	4
CHEM 241	Quantitative Analysis	2
CHEM 242	Introduction to Inorganic Chemistry	4
CHEM 239	Integrated Research Lab I	1
CHEM 337	Elements of Physical Chemistry	4
CHEM 339	Integrated Research Lab II	1
CHEM 341	Instrumental Analysis	4
CHEM 400	Chemistry Seminar	2
CHEM 439	Integrated Research Lab III	1
One upper level course		
CHEM 425	Advanced Topics in Chemistry	4
or CHEM 434	Biochemistry (BIOL 434)	
MATH 220	Calculus I: Differential Cal.	4
Select one of the following:		8-10
PHYS 111 & PHYS 112	Introduction to Physics for the Life Sciences I and Introduction to Physics for the Life Sciences II	
PHYS 117 & PHYS 118	Physics I and Physics II	
PHYS 121	Classical and Modern Physics I	
Total Credits		51-53

Total credits required for A.B. degree in chemistry is 50-52 credits

The following chemistry courses can be used to satisfy the upper level course requirement:

Code	Title	Credits
CHEM 434	Biochemistry (BIOL 434)	4
CHEM 425	Advanced Topics in Chemistry	4
CHEM 390	Internship	1-8
CHEM 460	Advanced Independent Study	1-8
An advanced course in chemistry or a related field approved by the Chemistry department chair		4

Prerequisite Courses

Must be completed with a grade of C- or better before taking CHEM 337 Elements of Physical Chemistry.

Code	Title	Credits
Select one of the following:		4-8
PHYS 111 & PHYS 112	Introduction to Physics for the Life Sciences I and Introduction to Physics for the Life Sciences II	
PHYS 117 & PHYS 118	Physics I and Physics II	
PHYS 121	Classical and Modern Physics I	
MATH 220 & MATH 222	Calculus I: Differential Cal. and Calculus II: Integral Calculus.	

Majors who intend to pursue graduate study are strongly encouraged to obtain experience in computer programming at the level of Introduction to Computer Programming (CTIS 210).

Majors are strongly encouraged to participate in an industrial or governmental internship, pursue undergraduate research during the semester or summer, and/or study abroad as part of their experience at Guilford.

Scholarships. To recognize superior work in chemistry, the department annually offers a prize for outstanding achievement to a first-year student in Chemical Principles and the Harvey Ljung Scholarship to a rising senior chemistry major. In addition, the department selects a senior for the Ted Benfey Outstanding Student Award. Chemistry majors are also eligible for the GlaxoSmithKline Women in Science Scholarship, awarded annually to an outstanding rising junior woman science major.

Major Requirements for the B.S. Degree in Chemistry

Requirements for the major include the completion of a sequence of introductory and advanced courses in chemistry that introduce students to the main areas of study in chemistry. Coursework in the related fields of mathematics and physics is also required to prepare students for upper-level courses in chemistry. For the Bachelor of Arts in chemistry, students must complete at least 36 credit hours in chemistry, among which must be included the courses listed below. For the Bachelor of Science in chemistry, students must complete 45 credit hours in chemistry, among which must be included the courses listed below.

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Code	Title	Credits
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CHEM 112	Chemical Principles II	4
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CHEM 242	Introduction to Inorganic Chemistry	4
CHEM 239	Integrated Research Lab I	1
CHEM 337	Elements of Physical Chemistry	4
CHEM 339	Integrated Research Lab II	1
CHEM 341	Instrumental Analysis	4
CHEM 400	Chemistry Seminar	2
CHEM 439	Integrated Research Lab III	1
One upper level course [1]		4

Select one of the following:		8-10
CHEM 425	Advanced Topics in Chemistry	4
or CHEM 434	Biochemistry (BIOL 434)	
MATH 220	Calculus I: Differential Cal.	4
PHYS 111 & PHYS 112	Introduction to Physics for the Life Sciences I and Introduction to Physics for the Life Sciences II	
PHYS 117 & PHYS 118	Physics I and Physics II	
PHYS 121 & PHYS 122	Classical and Modern Physics I and	
Total Credits		55-57

Additional Required Courses

Code	Title	Credits
CHEM 439	Integrated Research Lab III	1
CHEM 338	Applications of Physical Chemistry	4
MATH 222	Calculus II: Integral Calculus.	4
Total Credits		9

Total credits required for B.S. degree in chemistry is 59-61 credits.

The following chemistry courses can be used to satisfy the upper level course requirement:

Code	Title	Credits
CHEM 434	Biochemistry (BIOL 434)	4
CHEM 425	Advanced Topics in Chemistry	4
CHEM 390	Internship	1-8
CHEM 460	Advanced Independent Study	1-8
An advanced course in chemistry or a related field approved by the Chemistry department chair		4

Prerequisite Courses

Must be completed with a grade of C- or better before taking CHEM 337 Elements of Physical Chemistry.

Code	Title	Credits
Select one of the following:		4-8
MATH 220 & MATH 222	Calculus I: Differential Cal. and Calculus II: Integral Calculus.	8
PHYS 111 & PHYS 112	Introduction to Physics for the Life Sciences I and Introduction to Physics for the Life Sciences II	8
PHYS 117	Physics I	4
or PHYS 118	Physics II	
PHYS 121	Classical and Modern Physics I	4
or PHYS 122		

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