

DEPARTMENT OF NATURAL SCIENCES

The Department of Natural Sciences provides a solid educational foundation in both theoretical and investigative science with an emphasis on critical thinking and problem solving skills. The department prepares students for productive careers in natural sciences and entry into graduate or professional schools. The department offers two majors leading to the Bachelor of Science Degree: Bachelor of Science in Biology and Bachelor of Science in Chemistry. The department offers one major leading to the Master of Science Degree with a concentration in Biological Sciences or Biology Education.

Students have the option of selecting a minor in Comprehensive Science which prepares them to receive a Class "A" public instruction license. Students also have the option of selecting a concentration from the following:

Biochemistry

Biophysics

General Biology

Medical Physics

Pre-health Professionals

Pre-medicine/Pre-dentistry

Molecular Biology/Biotechnology

PROGRAM GOALS

1. Assist students in understanding basic unifying scientific principles through the provision of relevant facts, concepts, and theories;
2. Provide learning experiences to stimulate critical thinking and problem solving skills;
3. Enhance the overall educational experience of students with an interdisciplinary curriculum designed to enhance student performance on professional examinations;
4. Prepare students to be competitive for entry into the workforce or graduate and professional programs;
5. Collaborate with public school teachers, graduates, and professional institutions to broaden scientific career opportunities;
6. Attract, recruit, retain and produce more competitive students by enhancing program

offerings and requirements to meet the global needs of the science major; and

7. Provide an atmosphere that will promote participation of faculty and students in professional development and community outreach activities.

MAJOR: B.S. Degree in Chemistry

A. General Education Core		39
GE 102	Composition and Grammar	3
GE 103	Composition and Vocabulary	3
GE 118	Pre-Calculus	3
GE 122	Freshman Seminar	1
GE 130	Art Appreciation	2
MUS 207	African American in Music	2
GE 140	World Civilization I	3
GE 141	World Civilization II	3
GE 185	Health Concepts	2
GE 201	World Literature I	3
GE 202	World Literature II	3
PSY 212	General Psychology	3
SOC 201	Introduction to Sociology	3
	Physical Education	2
CSC 111	Introduction to Computer Science	3
B. Major Core Requirements		51
CHEM 101/101L	General Chemistry I/Lab	4
CHEM 102/102L	General Chemistry II/Lab	4
CHEM 200	Additional Topics in General Chemistry	3
CHEM 202/202L	Quantitative Chemistry /Lab	4
CHEM 205/205L	Inorganic Chemistry	4
CHEM 215	Introduction to Biomedical Science	3
CHEM 219	Basic Principles of Research	3
CHEM 301/301L	Organic Chemistry I/Lab	4
CHEM 302/302L	Organic Chemistry II/Lab	4
CHEM 350	Chemistry Seminar	1
CHEM 395	Introduction to Neurochemistry	3
CHEM 401/401L	Biochemistry I/Lab	4
CHEM 403/403L	Physical Chemistry I	4
CHEM 425/425L	Selected Topics in Organic Chemistry	4
CHEM 499	Chemical Research	2
C. Related Area Courses (Required)		24
BIOL 101/101L	General Biology I/Lab	4
BIOL 102/102L	General Biology II/Lab	4
PHYS 191/181L	University Physics I/Lab	4
PHYS 192/182L	University Physics II/Lab	4
MATH 165	Calculus I	4
MATH 265	Calculus II	4
D. Without Concentration		11
CHEM 404L	Physical Chemistry II/Lab	4
CHEM 405L	Instrumental Methods/Lab	4
CHEM 450	Chemistry: An Integrated Appr.	3
Total Semester Hours Required for Degree		128

Curriculum Guide for Major in Chemistry

Freshman Year

First Semester

Course and number		Semester hrs
GE 102	English Composition & Grammar	3

GE 118	Precalculus	3
GE 122	Freshman Seminar	1
GE 140	World Civilization I	3
MUS 207	African Americans Music	2
GE	Physical Ed. Activity	1
CHEM 101/101L	General Chemistry/Lab	4
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		17

Second Semester

GE 103	English Composition & Vocabulary	3
GE 130	Art Appreciation	2
GE 141	World Civilization II	3
MATH 165	Calculus I	4
CHEM 102/102L	General Chemistry II/Lab	4
GE	Physical Ed. Activity	1
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		17

Sophomore Year

First Semester

Course and number		Semester hrs
GE 201	World Literature I	3
CHEM 301/301L	Organic Chemistry/Lab	4
MATH 265	Calculus II	4
BIOL 101/101L	General Biology I/Lab	4
CHEM 200	Additional Topics in Gen Chemistry	3
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Second Semester

GE 202	World Literature II	3
GE 185	Health Concepts	2
CHEM 202/202L	Quantitative Chemistry	4
CHEM 219	Basic Principles of Research	3
BIOL 102/102L	General Biology II/Lab	4
CSC 111	Intro to Computing	3
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		16

Junior Year

First Semester

Course and number		Semester hrs
CHEM 350	Chemistry Seminar	1
PSY 212	General Psychology	3
CHEM 215	Intro. to Biomed. Science	3
CHEM 301/301L	Organic Chemistry/Lab	4
CHEM 205/L	Inorganic Chemistry/Lab	4
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		15

Second Semester

PHYS 191/181L	University Physics I/Lab	4
CHEM 302/302L	Organic Chemistry II	4
CHEM 401/L	Biochemistry I/Lab	4
SOC 201	Introduction to Sociology	3
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Senior Year

First Semester

Course and number		Semester hrs
CHEM 395	Introduction to Neurochemistry	3
CHEM 403/403L	Physical Chemistry I/Lab	4
CHEM 405	Instrumental Methods	4
PHYS 192/192L	University Physics II/Lab	4
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		15

Second Semester

CHEM 404/404L	Physical Chemistry II/Lab	4
CHEM 499	Chemical Research	2
CHEM 450	Chemistry: An Integrated App.	3
CHEM 425/425L	Selected Topics in Organic Chem/Lab	4
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MAJOR: B.S. Degree in Chemistry with Concentrations

A. General Education Core 39

GE 102	English Composition & Grammar	3
GE 103	English Composition & Vocabulary	3
GE 118	Pre-Calculus	3
GE 122	Freshman Seminar	1
GE 130	Art Appreciation	2
MUS 207	African Americans In Music	2
GE 140	World Civilization I	3
GE 141	World Civilization II	3
GE 185	Health Concepts	2
GE 201	World Literature I	3
GE 202	World Literature II	3
PSY 212	General Psychology	3
SOC 201	Introduction to Sociology	3
	Physical Education	2
CSC 111	Introduction to Computing	3

B. Major Core Requirements 50

CHEM 101/101L	General Chemistry I/Lab	4
CHEM 102/102L	General Chemistry II/Lab	4
CHEM 200	Additional Topics in General Chemistry	3
CHEM 202/202L	Quantitative Chemistry/Lab	4
CHEM 205/205L	Inorganic Chemistry	4
CHEM 215	Introduction to Biomedical Science	3
CHEM 219	Basic Principles of Research	3
CHEM 301/301L	Organic Chemistry I/Lab	4
CHEM 302/302L	Organic Chemistry II/Lab	4
CHEM 350	Chemistry Seminar	1
CHEM 395	Introduction to Neurochemistry	3
CHEM 401/401L	Biochemistry I/Lab	4
CHEM 403/403L	Physical Chemistry I/Lab	4
CHEM 450	Chemistry: An Integrated App.	3
CHEM 499	Chemical Research	2

C. Related Area Courses (Required) 24

BIOL 101/101L	General Biology I/Lab	4
BIOL 102/102L	General Biology III/Lab	4
PHYS 191/181L	University Physics I/Lab	4
PHYS 192/182L	University Physics III/Lab	4
MATH 165	Calculus I	4
MATH 265	Calculus II	4

D. Concentration in Biochemistry 15

CHEM 402/402L	Biochemistry II	4
CHEM 405/405L	Instrumental Methods/Lab	4
CHEM 407/407L	Applied Biochemistry	4
BIOL 380	Cell Biology	3

E. Concentration in Pre-Health Professions 16

BIOL 380	Cell Biology	3
BIOL 207/207L	Human Anatomy/Lab	4
BIOL 307/307L	Human Physiology	4
BIOL 341	Microbiology	4
BIOL 485	Medical Terminology	1

Curriculum Guide for Major in Chemistry with a Concentration in Biochemistry

Freshman Year

First Semester

Course and number		Semester hrs
GE 102	English Composition & Grammar	3
GE 118	Precalculus	3
GE 122	Freshman Seminar	1
GE 140	World Civilization I	3
MUS 207	African Americans in Music	2
GE	Physical Ed. Activity	1
CHEM 101/101L	General Chemistry/Lab	4

Second Semester

GE 103	English Composition & Vocabulary	3
GE 130	Art Appreciation	2
GE 141	World Civilization II	3
MATH 165	Calculus I	4
CHEM 102/102L	General Chemistry II/Lab	4
GE	Physical Activity	1
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Sophomore Year

First Semester

Course and number		Semester hrs
GE 201	World Literature I	3
CHEM 200	Additional Topics in Gen Chemistry	3
MATH 265	Calculus II	4
BIOL 101/101L	General Biology I/Lab	4
CHEM 219	Basic Principles of Research	3
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Second Semester

GE 202	World Literature II	3
CHEM 202/202L	Quantitative Chemistry/Lab	4
BIOL 102/102L	General Biology II/Lab	4
CHEM 215	Intro. to Biomedical Science	3
GE 185	Health Concepts	2
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Junior Year

First Semester

Course and number		Semester hrs
CHEM 205/205L	Inorganic Chemistry/Lab	4
CHEM 395	Introduction to Neurochemistry	3
PSY 212	General Psychology	3
CSC 111	Introduction to Computing	3
CHEM 301/301L	Organic Chemistry/Lab	4
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Second Semester

BIOL 485	Medical Terminology	1
CHEM 302/302L	Organic Chemistry III/Lab	4
CHEM 350	Chemistry Seminar	1
SOC 201	Intro. to Sociology	3
CHEM 401/401L	Biochemistry I/Lab	4
CHEM 403/403L	Physical Chemistry/Lab	4
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Senior Year

First Semester

Course and number		Semester hrs
PHYS 191/191L	University Physics I/Lab	4
CHEM 402/402L	Biochemistry II/Lab	4
BIOL 380	Cell Biology	3
CHEM 405/405L	Instrumental Methods/Lab	4
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Second Semester

PHYS 192/192L	University Physics II/Lab	4
CHEM 450	Chemistry: An Integrated App.	3
CHEM 407/L	Applied Biochemistry I/Lab	4
CHEM 499	Chemical Research	2
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Curriculum Guide for Major in Chemistry with a Concentration in Pre-Health Professions

Freshman Year

First Semester

Course and number		Semester hrs
GE 102	English Composition & Grammar	3

GE 118	Precalculus	3
GE 122	Freshman Seminar	1
GE 140	World Civilization I	3
MUS 207	African Americans in Music	2
GE	Physical Ed. Activity	1
CHEM 101/L	General Chemistry I/Lab	4
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Second Semester

GE 103	English Composition & Vocabulary	3
GE 130	Art Appreciation	2
GE 141	World Civilization II	3
MATH 165	Calculus I	4
CHEM 102/L	General Chemistry I/Lab	4
GE	Physical Activity	1
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Sophomore Year

First Semester

Course and number		Semester hrs
GE 201	World Literature I	3
CHEM 219	Basic Principles of Research	3
MATH 265	Calculus II	4
BIOL 101/L	General Biology I/Lab	4
CHEM 200	Additional Topics in Gen. Chem.	3
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Second Semester

GE 202	World Literature II	3
BIOL 102/L	General Biology II/Lab	4
CHEM 202/202L	Quantitative Chemistry/Lab	4
CHEM 215	Introduction to Biomedical Science	3
GE 185	Health Concepts	2
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Junior Year

First Semester

Course and number		Semester hrs
BIOL 207/L	Human Anatomy/Lab	4
CHEM 205/L	Inorganic Chemistry	4
PSY 212	General Psychology	3
BIOL 485	Medical Terminology	1
CHEM 301/301L	Organic Chemistry I/ Lab	4
CHEM 350	Chemistry Seminar	1
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Second Semester

BIOL 307/L	Human Physiology/Lab	4
CHEM 395/L	Introduction to Neurochemistry	3
CHEM 302/302L	Organic Chemistry II/Lab	4
CSC 111	Introduction to Computing	3
SOC 201	Introduction to Sociology	3
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Senior Year

First Semester

Course and number		Semester hrs
PHYS 191/191/L	University Physics I/Lab	4
CHEM 403/L	Physical Chemistry/Lab	4
CHEM 405/405L	Instrumental Methods/Lab	4
BIOL 341	Microbiology	4
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Second Semester

CHEM 450	Chemistry: An Integrated App.	3
PHYS 192/192L	University Physics II/Lab	4
BIOL 380	Cell Biology	3
CHEM 499	Chemical Research	2
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MINOR: GIS/Remote Sensing

CSC 115	Computer Science I	3
GEOG 221	Cartographic Principles	3
GEOL 332	Geomorphology	3
GEOL 360	Prin. Geographic Info. System (GIS)	4
GEOL 365	Introduction to Remote Sensing and Digital Image Processing	4
GEOL 461	Advanced GIS	4
Total Hours Required for Minor		21

MINOR: Geology

GE 158/L	Prin. of Geological Science/Lab	4
GEOL 143	Historical Geology	4
GEOL 332	Geomorphology	3
GEOL 341	Mineralogy	3
GEOL 345	Paleontology	3
GEOL 440	Structural Geology	3
Total Hours Required for Minor		20

MINOR: Chemistry

Required Courses		17
CHEM 101/101L	General Chemistry I/Lab	3/1
CHEM 102/102L	General Chemistry II/Lab	3/1
CHEM 202/202L	Quantitative Analysis/Lab	2/2
CHEM 301/301L	Organic Chemistry I/Lab	3/1
Select One Course From The Following		4
CHEM 302/302L	Organic Chemistry II/Lab	3/1
OR		
CHEM 401/401L	Biochemistry/Lab	3/1
OR		
CHEM 403/403L	Physical Chemistry I/Lab	3/1
Total Semester Hours Required for Minor		20

MINOR: Physics

Required Courses		17
PHYS 191/181L	University Physics I/Lab	3/1
PHYS 192/182L	University Physics II/Lab	3/1
PHYS 193	University Physics III	3
PHYS 201	Mechanics I	3
PHYS 301	Electricity and Magnetism I	3
Select One Course From The Following		3
PHYS 202	Mechanics II	3
OR		
PHYS 310	Optics	3
OR		
PHYS 320	Thermodynamics	3
Total Semester Hours Required for Minor		20