

CHEMISTRY (B.S.) BIOMEDICAL SCIENCES

Major Requirements

Code	Title	Hours
CHEM 141 & CHML 141	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB	4
CHEM 142 & CHML 142	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LAB	4
CHEM 241 & CHML 241	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY I LAB	4
CHEM 242 & CHML 242	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY II LAB	4
CHEM 310	INTRO TO SCIENTIFIC RESEARCH	2
CHEM 320 & CHML 320	ANALYTICAL CHEMISTRY and ANALYTICAL CHEMISTRY LAB	4
CHEM 340 & CHML 340	INORGANIC CHEMISTRY I and INORGANIC CHEMISTRY LAB	4
CHEM 341 & CHML 341	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LAB	4
CHEM 381	CHEMISTRY SEMINAR	0.5
CHEM 382	CHEMISTRY SEMINAR	0.5
CHEM 429	Organic Structure Determination by Spectroscopy	3
CHEM 481	CHEMISTRY SEMINAR	0.5
CHEM 482	CHEMISTRY SEMINAR	0.5
MATH 242	CALCULUS II WITH LABORATORY	3
Total Hours		38

Note: Students are qualified to receive a minor in biology.

Concentration (Biomedical)

Code	Title	Hours
PHY 201 & PHYL 201	BASIC PHYSICS I and BASIC PHYSICS LAB I	4
PHY 202 & PHYL 202	BASIC PHYSICS II and BASIC PHYSICS LAB II	4
Statistics Elective		3
CHEM 380	INDEPENDENT STUDY	3
CHEM 241 & CHML 241	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY I LAB	4
CHEM 431	BIOCHEMISTRY I	3
CHEM 432	BIOCHEMISTRY II	3
Biomedical Option with Lab		4
Biomedical Option		3

Biomedical Options

Code	Title	Hours
BIO 234 & BIOL 234	HUMAN ANATOMY & PHYSIOLOGY I and HUMAN ANATOMY & PHYSIOLOGY LAB	4
BIO 313 & BIOL 313	INTRODUCTION TO MICROBIOLOGY and INTRODUCTION TO MICROBIOLOGY L	4
BIO 318 & BIOL 318	INTRODUCTORY GENETICS and INTRODUCTORY GENETICS LAB	4

BIO 440 & BIOL 440	CELL BIOLOGY and CELL BIOLOGY LAB	4
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Curriculum Map

Course	Title	Hours
Freshman		
Fall		
CHEM 141 & CHML 141	GENERAL CHEMISTRY I and GENERAL CHEMISTRY LAB	4
ENG 104 or ENG 103 or ENG 111	COMPOSITION I or English Composition I with Co-requisite Support or COMPOSITION & LITERATURE FOR L	3
BIO 111 & BIOL 111	GENERAL BIOLOGY and GENERAL BIOLOGY LAB	4
UNIV 100	UNIVERSITY SUCCESS	2
Humanities & Fine Arts Option		3
		Hours
		16
Spring		
CHEM 142 & CHML 142	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LAB	4
ENG 105 or ENG 112	COMPOSITION II or COMPOSITION	3
BIO 112 & BIOL 112	GENERAL BIOLOGY and GENERAL BIOLOGY LAB	4
MATH 241	CALCULUS I WITH LABORATORY	3
Pathway Option		3
		Hours
		17
Sophomore		
Fall		
CHEM 241 & CHML 241	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY I LAB	4
MATH 242	CALCULUS II WITH LABORATORY	3
PHY 211 & PHYL 211	General Physics I and GENERAL PHYSICS LAB I	4
Humanities & Fine Arts Option		3
Pathway Option		3
		Hours
		17
Spring		
CHEM 242 & CHML 242	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY II LAB	4
CHEM 340 & CHML 340	INORGANIC CHEMISTRY I and INORGANIC CHEMISTRY LAB	4
PHY 212 & PHYL 212	General Physics II and GENERAL PHYSICS LAB II	4
UNIV 200	CIVIC ENGAGEMENT	1
Pathway Option		3
		Hours
		16
Junior		
Fall		
CHEM 320 & CHML 320	ANALYTICAL CHEMISTRY and ANALYTICAL CHEMISTRY LAB	4
CHEM 381	CHEMISTRY SEMINAR	0.5
CHEM 341 & CHML 341	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LAB	4
CHEM 380	INDEPENDENT STUDY	1
Humanities & Fine Arts Option		3
Social & Behavioral Science Option		3
		Hours
		15.5
Spring		
CHEM 310	INTRO TO SCIENTIFIC RESEARCH	2
CHEM 380	INDEPENDENT STUDY	1
CHEM 382	CHEMISTRY SEMINAR	0.5
Biomedical Option & Lab		4

Biomedical Option		3
Social & Behavioral Science Option		3
Hours		13.5
Senior		
Fall		
CHEM 431 & CHML 431	BIOCHEMISTRY I and BIOCHEMISTRY I LAB	4
CHEM 481	CHEMISTRY SEMINAR	0.5
General Elective		3
General Elective		3
General Elective		3
Hours		13.5
Spring		
CHEM 421 & CHML 421	CHEMICAL INSTRUMENTATION and CHEMICAL INSTRUMENTATION LAB	4
CHEM 429	Organic Structure Determination by Spectroscopy	3
CHEM 482	CHEMISTRY SEMINAR	0.5
CHEM 432	BIOCHEMISTRY II	3
General Elective		3
Hours		13.5
Total Hours		122

Notes:

- Candidates that transfer 12 or more hours of college credit are exempt from UNIV 100 UNIVERSITY SUCCESS; however, the student must take 2 hours of general electives to replace the UNIV course.
- Online Graduation Clearance (**to be completed during the graduating semester only**).

Biomedical Sciences Option Courses

Code	Title	Hours
Select two of the following. One must have a lab: 7		
BIO 234 & BIOL 234	HUMAN ANATOMY & PHYSIOLOGY I and HUMAN ANATOMY & PHYSIOLOGY LAB	
BIO 313 & BIOL 313	INTRODUCTION TO MICROBIOLOGY and INTRODUCTION TO MICROBIOLOGY L	
BIO 318	INTRODUCTORY GENETICS	
BIO 440 & BIOL 440	CELL BIOLOGY and CELL BIOLOGY LAB	

Student Learning Outcomes

JSU Chemistry graduates will:

- acquire comprehensive knowledge of the fundamentals and application of major scientific theories in chemistry;
- be able to carry out laboratory experiments in chemistry in a safe manner as well as accurately record, analyze, and interpret the results of such experiments.
- learn, develop, and be able to apply information literacy skills in chemistry.
- be able to clearly communicate chemistry knowledge in both oral and written formats.
- be able to participate and contribute to new scientific discoveries and/or technology development efforts using their chemistry knowledge.