CHEMISTRY (B.S.) PRE-PROFESSION CONCENTRATION

Major Requirements

Code	Title	Hours
CHEM 141 & CHEM 142	GENERAL CHEMISTRY I and GENERAL CHEMISTRY II	6
CHML 141 & CHML 142	GENERAL CHEMISTRY LAB and GENERAL CHEMISTRY II LAB	2
CHEM 241 & CHEM 242	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY II	6
CHML 241 & CHML 242	ORGANIC CHEMISTRY I LAB and ORGANIC CHEMISTRY II LAB	2
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 481	CHEMISTRY SEMINAR	0.5
CHEM 482	CHEMISTRY SEMINAR	0.5
MATH 242	CALCULUS II WITH LABORATORY	3
Total Hours		**35**

Concentration (Pre-Pofessional)

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
BIO 234 & BIOL 234	HUMAN ANATOMY & PHYSIOLOGY I and HUMAN ANATOMY & PHYSIOLOGY LAB	4
BIO 235 & BIOL 235	HUMAN ANATOMY & PHYSIOLOGY II and HUMAN ANATOMY & PHYSIOLOGY LAB	4
BIO 313 & BIOL 313	INTRODUCTION TO MICROBIOLOGY and INTRODUCTION TO MICROBIOLOGY L	4
Statistics Option		3
CHEM 380	INDEPENDENT STUDY	2
CHEM 431 & CHML 431	BIOCHEMISTRY I and BIOCHEMISTRY I LAB	4
CHEM 432	BIOCHEMISTRY II	3
Advance Chemistry Elective		6
Total Hours		**38**

Curriculum Map

Course	Title	Hours
Freshman		
Fall		
BIO 111 & BIOL 111	GENERAL BIOLOGY and GENERAL BIOLOGY LAB	4
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
UNIV 100	UNIVERSITY SUCCESS	2
Humanities & Fine Arts Option		3
	Hours	**16**
Spring		
BIO 112 & BIOL 112	GENERAL BIOLOGY and GENERAL BIOLOGY LAB	4
CHEM 142 & CHML 142	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LAB	4
ENG 105 or ENG 112	COMPOSITION II or COMPOSITION	3
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 341 & CHML 341	PHYSICAL CHEMISTRY I and PHYSICAL CHEMISTRY I LAB	4
CHEM 381	CHEMISTRY SEMINAR	0.5
CHEM 380	INDEPENDENT STUDY	1
Humanities & Fine Arts Option		3
	Hours	**12.5**
Spring		
BIO 234 & BIOL 234	HUMAN ANATOMY & PHYSIOLOGY I and HUMAN ANATOMY & PHYSIOLOGY LAB	4
CHEM 310	INTRO TO SCIENTIFIC RESEARCH	2
CHEM 380	INDEPENDENT STUDY	1
CHEM 382	CHEMISTRY SEMINAR	0.5
Statistics Option		3
Social & Behavioral Science Option		3
	Hours	**13.5**

Senior		
Fall		
BIO 235 & BIOL 235	HUMAN ANATOMY & PHYSIOLOGY II and HUMAN ANATOMY & PHYSIOLOGY LAB	4
CHEM 431 & CHML 431	BIOCHEMISTRY I and BIOCHEMISTRY I LAB	4
CHEM 481	CHEMISTRY SEMINAR	0.5
Chemistry Elective		3
Social & Behavioral Science Option		3
	Hours	**14.5**
Spring		
BIO 313 & BIOL 313	INTRODUCTION TO MICROBIOLOGY and INTRODUCTION TO MICROBIOLOGY L	4
CHEM 432	BIOCHEMISTRY II	3
CHEM 482	CHEMISTRY SEMINAR	0.5
Chemistry Elective		3
Humanities & Fine Arts Option		3
	Hours	**13.5**
	Total Hours	**120**

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**).

Statistics Option Courses

Code	Title	Hours
Select one of the following courses		
MATH 271	ELEMENTARY STATISTICS I	3
BIO 202	ELEMENTARY BIOSTATISTICS	3
PSY 211	STATISTICS I	3

Pre-Professional Option Courses

Code	Title	Hours
Students must choose six (6) hours of the following pre-professional courses		
CHEM 421	CHEMICAL INSTRUMENTATION	3
CHEM 342	PHYSICAL CHEMISTRY II	3
CHEM 441	INORGANIC CHEMISTRY II	3
BIO 318	INTRODUCTORY GENETICS	3
BIO 440	CELL BIOLOGY	3
BIO 441	HISTOLOGY	3
BIO 470	HUMAN PHYSIOLOGY	3

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.