

CHEMISTRY (B.S.) AMERICAN CHEMICAL SOCIETY CERTIFIED

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	PHYSICAL CHEMISTRY I	3
CHML 341	PHYSICAL CHEMISTRY I LAB	1
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

Code	Title	Hours
Concentration (ASC Certification)		
CHEM 342	PHYSICAL CHEMISTRY II	3
CHML 342	PHYSICAL CHEMISTRY II LAB	1
CHEM 380	INDEPENDENT STUDY	2
CHEM 421	CHEMICAL INSTRUMENTATION	3
CHML 421	CHEMICAL INSTRUMENTATION LAB	1
CHEM 431	BIOCHEMISTRY I	3
CHML 431	BIOCHEMISTRY I LAB	1
CHEM XXX	Advance Chemistry Elective	6
PHY 211 & PHYL 211	General Physics I and GENERAL PHYSICS LAB I	4
PHY 212 & PHYL 212	General Physics II and GENERAL PHYSICS LAB II	4
MATH 243	CALCULUS III WITH LABORATORY	3

Total Hours 31

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
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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
MATH 241	CALCULUS I WITH LABORATORY	3
Humanities & Fine Arts Option		3
Pathway Option		3

Hours 16

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
MATH 243	CALCULUS III WITH LABORATORY	3
Pathway Option		3
UNIV 200	CIVIC ENGAGEMENT	1

Hours 19

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 380	INDEPENDENT STUDY	1
CHEM 381	CHEMISTRY SEMINAR	0.5
Social & Behavioral Science Option		3

Hours 12.5

Spring		
CHEM 310	INTRO TO SCIENTIFIC RESEARCH	2
CHEM 342 & CHML 342	PHYSICAL CHEMISTRY II and PHYSICAL CHEMISTRY II LAB	4
CHEM 382	CHEMISTRY SEMINAR	0.5
CHEM 429	Organic Structure Determination by Spectroscopy	3
Social & Behavioral Science Option		3

Hours 12.5

Senior		
Fall		
CHEM 431 & CHML 431	BIOCHEMISTRY I and BIOCHEMISTRY I LAB	4
CHEM 380	INDEPENDENT STUDY	1
CHEM 481	CHEMISTRY SEMINAR	0.5
Advance Chemistry Elective		3
General Elective		3
General Elective		3

Hours 14.5

Spring

CHEM 421 & CHML 421	CHEMICAL INSTRUMENTATION and CHEMICAL INSTRUMENTATION LAB	4
CHEM 482	CHEMISTRY SEMINAR	0.5
Advance Chemistry Elective		3
General Elective		3
General Elective		3
Hours		13.5
Total Hours		121

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.
- Standardized Tests (GRE, MCAT, MFT, PCAT, etc), the Chemistry Exit Exam, Research Report, and Research Presentation are required before graduation.
- Online Graduation Clearance (**to be completed during the graduating semester only**).

Code	Title	Hours
<i>Advance Chemistry Electives</i>		
CHEM 410	ENVIRONMENTAL CHEMISTRY	3
CHEM 432	BIOCHEMISTRY II	3
CHEM 436	PHYSICAL ORGANIC CHEMISTRY	3
CHEM 439	Introduction to Polymer Chemistry	3
CHEM 452	ATOMIC & MOLECULAR STRUCTURE	3
CHEM 458	QUANTUM MECHANICS	3
CHEM 471	FORENSIC TOXICOLOGY	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.