Biology (B.S.) – Science 7-12 Cert. 2022-2023 Academic Catalog, Bachelor of Science – Biology, Science 7-12 Certification

Academic Core for B.S.

49 Hours

CHRISTIAN STU	DIES	6
CSBS 1311	Engaging the Old Testament	3
CSBS 1312	Engaging the New Testament	3
ENGLISH		9
ENGL 1321	Rhetoric & Composition I	3
ENGL 1321	Rhetoric & Composition II	3
ENGL	Literature	3
	or higher is required in ENGL 1321 and ENGL 1322.	5
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EXERCISE & SPC	ALL SCIENCE	2
EXAC	Activity Course	1
EXAC	Activity Course	1
FINE ARTS - SE	LECT ONE	3
ARTS 1350	Art Appreciation	3
COMM 2335	Film Appreciation	3
FINA 2330	Exploring the Fine Arts	3
MUSI 1340	Music Appreciation	3
		-
THEA 2350	Introduction to the Theatre	3
WORLD CULT	URES – SELECT ONE	3
ARTS 2354	World Art	3
EXSS 2353	Lifespan Nutrition	3
HIST 1311	History of World Civilizations to 1500	3
HIST 1312	History of World Civilizations since 1500	3
MUSI 2358	World Music	3
PHIL 2315	Introduction to Philosophy	3
LAB SCIENCE		8
GEOL 1402	Historical Geology	4
PHYS 2411	General Physics I	4
		2
COMM 1320	Public Speaking	3 3
COIVIIVI 1320	r ubile speaking	5
MATHEMATICS	1	3
MATH 2303	Statistics	3
RESEARCH MET	HODS OR INTERNSHIP	2
BIOL 2170	Research Methods	1
BIOL 2171	Research Methods	1
	CE – SELECT ONE	3
BECO 2310	Principles of Economics	3
PSYC 1301	General Psychology	3
PSYC 2399	Child and Adolescent Development	3
SOCI 1311	Introduction to Sociology	3
SOCW 2311	Introduction to Social Work	3
	DR US GOVERNMENT – SELECT ONE	3
HIST 2311	American History to 1877	3
HIST 2312	American History since 1877	3
POLS 2310	State and Federal Government I	3
POLS 2311	State and Federal Government II	3
	TECHNOLOGY	-
CLASSROOM CLASSROOM	Classroom Technology	3
2000 2011	Classicon recinology	J
FRESHMAN SEN		1
UMHB 1101	Freshman Seminar	1
CHAPEL-1 to 4	credits	
UMHB 1002	Chapel	
Fine Arts Fyneria	ence – 2 to 8 credits	
UMHB 1005		

UMHB 1005 Fine Arts Experience

Biology – Science 7-12 Cert.

B.S. BIOLOGY	MAJOR REQUIRED COURSES	36
BIOL 1090	Freshman Evaluation (Freshman Only)	0
BIOL 1350	Biomolecules, Genes, and Cells	3
BIOL 1150	Biomolecules, Genes, and Cells Lab	1
BIOL 1360	Organisms, Populations, and Ecosystems	3
BIOL 1160	Organisms, Populations, and Ecosystems Lab	1
BIOL 3310	Genetics	3
BIOL 3110	Genetics Lab	1
BIOL 4090	Senior Evaluation	0
BIOL 4194 BIOL 4295	Capstone Writing Capstone Seminar	1 2
BIOL 4295 BIOL 4370	Applied Ecology	2
BIOL 4370 BIOL 4170	Applied Ecology Applied Ecology Lab	5 1
Biology Elective		T
BIOL	Upper-level Elective with Lab	4
BIOL	Any Biology with Lab	4
BIOL	Biology Electives	5-6
	tive – Select one	50
BIOL 2330	Foundations of Comparative Physiology	3
5102 2000	or	0
BIOL 2140	Human Anatomy & Physiology I Lab	1
BIOL 2340	Human Anatomy & Physiology I	3
	or	
BIOL 2180	Microbiology Lab	1
BIOL 2380	Microbiology	3
No grade lower th	an a "C" will count toward fulfillment of Biology major requ	irements.
Biology Require	d Support Courses	10
GEOL 1401	Physical Geology	4
MATH 1306	College Algebra	3
WRIT 3344	Scientific Writing	3
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MINOR IN CHI		24
CHEM 1410	General Chemistry I	4
CHEM 1410 CHEM 1420	General Chemistry I General Chemistry II	4 4
CHEM 1410 CHEM 1420 CHEM 3001	General Chemistry I General Chemistry II Lab Assistantship	4 4 0
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis	4 4 0 4
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I	4 4 0 4 4
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II	4 4 0 4 4 4
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar	4 4 0 4 4 4 1
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II	4 4 0 4 4 4
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar	4 4 0 4 4 4 1
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory	4 4 0 4 4 4 1 3
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION)	4 4 4 4 1 3 27
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning	4 4 4 4 4 1 3 27 3
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management	4 4 4 4 4 1 3 27 3 3
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4328	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design	4 4 4 4 1 3 27 3 3 3 3 3 3 3 3 3
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4328 EDUC 4385	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship	4 4 4 4 1 3 27 3 3 3 3 3 3 2
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4326 EDUC 4250 EDUC 4501	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I	4 4 4 4 1 3 27 3 3 3 3 3 3 3 2 5
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEL EDUC 3315 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4326 EDUC 4250	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar	4 4 4 4 1 3 27 3 3 3 3 3 3 2
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEI EDUC 3315 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4326 EDUC 4320 EDUC 4501 EDUC 4502	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I	4 4 4 4 1 3 27 3 3 3 3 3 3 3 2 5
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CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4326 EDUC 4501 EDUC 4502 Total Hours Academic Core B.S. Biology Ma	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I Student Teaching II for B.S. jor Required Courses	4 4 4 4 1 3 27 3 3 3 3 3 3 3 3 3 3 3 3 2 5 5 5 49 36
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4320 EDUC 4501 EDUC 4502 Total Hours Academic Core B.S. Biology Ma Biology Require	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I Student Teaching II for B.S. jor Required Courses d Support Courses	4 4 4 4 1 3 27 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 5 5 5 49 36 10
CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4324 EDUC 4325 READ 4326 EDUC 4501 EDUC 4501 EDUC 4502 Total Hours Academic Core B.S. Biology Ma Biology Require Minor in Chemi	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I Student Teaching II for B.S. jor Required Courses d Support Courses stry	4 4 4 4 1 3 27 3 3 3 3 3 3 3 3 3 3 3 3 3 3 5 5 5 49 36 10 24
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CHEM 1410 CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEE EDUC 3315 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4326 EDUC 4501 EDUC 4501 EDUC 4502 Total Hours Academic Core B.S. Biology Ma Biology Require Minor in Chemi Minor in Chemi Minor in Pedage Total hours req	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I Student Teaching I Student Teaching II for B.S. jor Required Courses d Support Courses stry ogy (Secondary Level Certification) uired for graduation luation Requirements r Level hours	4 4 4 4 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3
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CHEM 1410 CHEM 1410 CHEM 1420 CHEM 3001 CHEM 3400 CHEM 3410 CHEM 3420 CHEM 4191 CHEM 4300 MINOR IN PEL EDUC 3315 EDUC 4324 EDUC 4324 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4328 EDUC 4326 EDUC 4320 EDUC 4501 EDUC 4502 Total Hours Academic Core B.S. Biology Ma Biology Require Minor in Chemi Minor in Chemi Minor in Pedage Total hours req Additional Grad Minimum Uppe Minimum hours	General Chemistry I General Chemistry II Lab Assistantship Quantitative Analysis Organic Chemistry I Organic Chemistry II Seminar Safety in the Academic Laboratory DAGOGY (SECONDARY LEVEL CERTIFICATION) Students and Learning Classroom Management Curriculum Design Educational Internship Disciplinary Literacy Certification Preparation Seminar Student Teaching I Student Teaching II for B.S. jor Required Courses d Support Courses stry opgy (Secondary Level Certification) uired for graduation Hation Requirements at ken at UMHB tr Level hours taken at UMHB	4 4 4 4 1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3