

Bachelor of Science in Life Sciences Program Curriculum

The Bachelor of Science in Life Sciences offers three majors for students to choose from: *Biological Sciences & Nanotechnology*, *Environmental Sciences & Sustainability*, and *Biomedical Science*. The first two years are common for all majors, and in the 3rd year students start taking courses that are specific to the major of their choice. Students also have access to a variety of advanced electives courses to choose from including cancer biology, forensic science, environmental toxicology, medicinal chemistry, bioinformatics, and special topics. The Life Sciences Program requires a total of 135 credit hours to complete the program. This includes general education requirements (24 credits), college requirement courses (36 credits), program requirement courses (45 credits), major requirement courses (18 credits), major electives (6 credits), college electives (advanced science electives-6 credits) and summer internship (0 credits). All courses carry three credit hours except the courses with labs (described as +L). Students who meet requirement conditions may take one or more graduate courses to fulfill program graduation requirements (maximum of nine credit-hours).

	Course Code	Course Title	Credit Hours (CRHs)			Pre-Requisite Courses	Co-Requisite Courses
			Total	Lect.	Lab		
Gen. Edu. Requirements (Arts & Hum. 9 CRH)	ENG 101 University Writing (Required)						
	1. All Language courses:						
	Arabic Language Courses (e.g. ARB 101, ARB 112)						
	English Courses (e.g.ENG 201, ENG 222, ENG 223, ENG 301, ENG 302, ENG 303, ENG 401, ENG 402, ENG 403)						
	Foreign Language Courses (e.g. FRE 101, FRE 112, GER 101, GER 112, GER 103, GER 113, GER 213)						
	2. All Arts Courses:						
	(ART 103 Fine Art Fundamentals, ART 105, ART 107, ART 110, FAS 101 Fashion and Society)						
	3. All Music Courses: MUS 109 Music and Society						
	5. All Religious & Islamic Studies Courses (e.g. ISL101, ISL 112, ISL 103, ISL 113)						
	8. All Film & Media Studies Courses:						
(FLM 101 Film Theory, FLM 202 Genres of Film)							
9. Women Studies Courses							
(WOM 101 Women, Power, and Leadership in the Modern World)							
Gen. Edu. Requirements Social Sciences 6 CRH	1. ANT 103 Saudi Culture and Traditions						
	2. ANT 101 – Sociocultural Anthropology						
	3. Sociology Courses (e.g. SOC 101, SOC 201)						
	4. Business courses: (BAN 101, MGT 125, MGT 210, MKT 201, BUS 101)						
	5. Law Courses (LAW 140, LAW 130, LAW 102, LAW 135, LAW 134, LAW 138, LAW 122, LAW 125, LAW 121, LAW 137)						
	6. Diplomacy and International Relations Courses (e.g. INR 101, INR 102, INR 103, INR 104, INR 105, INR 201, INL 201, GPP 205, INR 221, INR 223, INR 240)						
	7. History Courses (e.g. HIS 101)						
	8. Psychology Courses (e.g. PSY 101, PSY 203)						

	Course Code	Course Title	Credit Hours (CRHs)			Pre-Requisite Courses	Co-Requisite Courses
			Total	Lect.	Lab		
Gen. Edu. Requirements Sciences 9 CRH	1. AI 102 AI for Everyone: Foundation and Applications (Required)						
	2. AST 101 Introduction to Astronomy & Space Exploration						
	3. SCI 310 Forensic Science						
	4. NUT 101 Introduction to Human Nutrition and Wellness						
	5. NSC 200 Introduction to Neuroscience						
	6. SE100 and SE100 L						
	7. CUL 101 Culinary Arts & Gastronomy						
	College Requirements (36 Credit Hours)	BIO 101	General Biology I	4	3	1	
BIO 112		General Biology II	4	3	1	BIO 101	BIO 112L
CHM 101		General Chemistry I	4	3	1		CHM 101L
CHM 112		General Chemistry II	4	3	1	CHM 101/ or CHM 102	CHM 112L
CSC 101		Introduction to Computer Science	3	3	0		
MAT 101		Calculus I	3	3	0		
MAT 116		Analytical Methods	3	3	0	MAT 101	
PHU 103		Physics I	4	3	1		PHU 103L
PHU 124		Physics II	4	3	1	PHU 103	PHU 124L
STA 211		Probability & Statistics	3	3	0	MAT 116	
Program Requirements (45 Credit Hours)	BIO 223	Microbiology	4	3	1	BIO 112 CHM 112	BIO 223L
	BIO 224	Human Physio. & Anat.	4	3	1	BIO 112	BIO 224L
	BIO 346	Biochemistry I	4	3	1	BIO 224 CHM 212 PHU 216 STA 211	BIO 346L
	BIO 315	Genetics	3	3	0	BIO 223	
	BIO 440	Biotechnology	3	3	0	BIO 346 ENV 205	
	CHM 211	Organic Chemistry I	4	3	1	CHM 112	CHM 211L
	CHM 212	Organic Chemistry II	4	3	1	CHM 211	CHM 212L
	CHM 310	Instrumental Analysis	4	3	1	CHM 212 PHU 216 MAT 116	CHM 310L
	ENV 205	Environ. Sci. & Sustainability	3	3	0	CHM 112	
	LSR 302	Research Methodology	3	3	0	ENG 112/ ENG 113	
	LSR 390	Life Sci. Summer Internship	0	0	0	LSR 302	

	Course Code	Course Title	Credit Hours (CRHs)			Pre-Requisite Courses	Co-Requisite Courses
			Total	Lect.	Lab		
	LSR 421	Life Sci. Research Project I	3	0	3	LSR 302	
	LSR 422	Life Sci. Research Project II	3	0	3	LSR 421	
	LSR 423	Life Sci. Research Seminar	3	3	0	LSR 421	
BSN Major (18 Credit Hours)	Biological Sciences & Nanotechnology (BSN) Major						
	BIO 345	Molecular Biology I	4	3	1	BIO 223	BIO 345L
	BIO 357	Molecular Biology II	4	3	1	BIO 345	BIO 357L
	BIO 358	Biochemistry II	4	3	1	BIO 346	BIO 358L
	BIO 439	Clinical Laboratory Science	3	3	0	BIO 223 CHM 212 BIO 224	
	BSN 430	Nanomaterials & Nanotechnology	3	3	0	CHM 310	
ESS Major (18 Credit Hours)	Environmental Sciences & Sustainability (ESS) Major						
	BIO 325	Conservation Biology	3	3	0	BIO 223	
	ENV 305	Environmental Health	3	3	0	BIO 223	
	ENV 330	Energy & Sustainability	3	3	0	ENV 205	
	ENV 410	Environmental Monitoring	3	3	0	CHM 310	
	ENV 420	Waste Management	3	3	0	ENV 205	
	ENV 425	Environ. Policy & Economics	3	3	0	ENV 205	
BMS Major (18 Credit Hours)	Biomedical Science (BMS) Major						
	BMS 305	Clinical Chemistry	4	3	1	BIO 224	BMS 305L
	BMS 315	Body Fluid Analysis	4	3	1	BIO 224	BMS 315L
	BMS 320	Clinical Microbiology and Parasitology	4	3	1	BIO 223	BMS 320L
	BMS 425	Hematology and Blood Banking	3	3	0	BIO 224	
	BMS 445	Medical Genetics	3	3	0	BIO 346	

	Course Code	Course Title	Credit Hours (CRHs)			Pre-Requisite Courses	Co-Requisite Courses
			Total	Lect.	Lab		
BSN Major Electives (6 Credit Hours)	SCI 321	Immunology	3	3	0	BIO 224	
	SCI 322	Cancer Biology	3	3	0	BIO 224	
	SCI 323	Signal Transduction	3	3	0	BIO 224	
	SCI 325	Bioinformatics & Computational Genomics	3	3	0	BIO 224 STA 211	
	SCI 326	Virology	3	3	0	BIO 223	
	LST 421	Life Sci. Special Topics I	3	3	0	BIO 346	
ESS Major Electives (6 Credit Hours)	CHM 213	Analytical Chemistry	3	3	0	CHM 112	
	CHM 320	Physical Chemistry	3	3	0	CHM 212	
	CHM 332	Environmental Chemistry	3	3	0	CH M 211	
	ENV 310	Environ. Toxicology	3	3	0	ENV 205	
	LST 422	Life Sci. Special Topics II	3	3	0	BIO 346	
BMS Major Electives (6 Credit Hours)	SCI 332	Pathology	3	3	0	BIO 223	
	SCI 329	Clinical Endocrinology & Toxicology	3	3	0	BIO 224	
	SCI 327	Histology and Cytology	3	3	0	BIO 224	
	BIO 439	Clinical Laboratory Science	3	3	0	BIO 223 CHM 212 BIO 224	
	SCI 330	Advanced techniques in genetics	3	3	0	BIO 315	

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Study Plan: Biological Sciences & Nanotechnology						
	Fall (20 CRHs)			Spring (20 CRHs)		
1 st Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 101	General Biology I	(3+1)	BIO 112	General Biology II	(3+1)
	CHM 101	General Chemistry I	(3+1)	CHM 112	General Chemistry II	(3+1)
	CSC 101	Introduction to Computer Science	(3+0)	***	Arts & Humanities Elective II	(3+0)
	MAT 101	Calculus I	(3+0)	MAT 116	Analytical Methods	(3+0)
	ENG 101	University Writing	(3+0)	***	Social Sciences Elective I	(3+0)
	***	Arts & Humanities Elective I	(3+0)	***	Social Sciences Elective II	(3+0)
	Fall (18 CRHs)			Spring (18 CRHs)		
2 nd Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 223	Microbiology	(3+1)	BIO 224	Human Physiology & Anatomy	(3+1)
	CHM 211	Organic Chemistry I	(3+1)	CHM 212	Organic Chemistry II	(3+1)
	PHU 103	Physics I	(3+1)	PHU 124	Physics II	(3+1)
	STA 212	Probability & Statistics	(3+0)	ENV 205	Environmental Science & Sustainability	(3+0)
	***	Science Elective I	(3+0)	AI 102	AI for Everyone: Foundation and Applications	(3+0)
	Fall (18 CRHs)			Spring (17 CRHs)		
3 rd Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 346	Biochemistry I	(3+1)	BIO 358	Biochemistry II	(3+1)
	CHM 310	Instrumental Analysis	(3+1)	LSR 302	Research Methodology	(3+0)
	BIO 345	Molecular Biology I	(3+1)	BIO 357	Molecular Biology II	(3+1)
	BIO 315	Genetics	(3+0)	***	Major Elective II	(3+0)
	***	Major Elective I	(3+0)	***	Science Elective II	(3+0)
	LSR 390	Life Sciences Summer Internship (0 CRHs)				
	Fall (12 CRHs)			Spring (12 CRHs)		
4 th Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 439	Clinical Laboratory Science	(3+0)	***	Advanced Sci. Elective I	(3+0)
	BSN 430	Nanomaterials & Nanotechnology	(3+0)	***	Advanced Sci. Elective II	(3+0)
	LSR 421	Life Science Research Project I	(0+3)	LSR 422	Life Science Research Project II	(0+3)
	BIO 440	Biotechnology	(3+0)	LSR 423	Integrative Life Science Research Seminar	(3+0)

*** Multiple courses to choose from (see program curriculum for the list of courses).

Study Plan: Environmental Sciences & Sustainability						
	Fall (20 CRHs)			Spring (20 CRHs)		
1 st Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 101	General Biology I	(3+1)	BIO 112	General Biology II	(3+1)
	CHM 101	General Chemistry I	(3+1)	CHM 112	General Chemistry II	(3+1)
	CSC 101	Introduction to Computer Science	(3+0)	***	Arts & Humanities Elective II	(3+0)
	MAT 101	Calculus I	(3+0)	MAT 116	Analytical Methods	(3+0)
	ENG 101	University Writing	(3+0)	***	Social Sciences Elective I	(3+0)
	***	Arts & Humanities Elective I	(3+0)	***	Social Sciences Elective II	(3+0)
	Fall (18 CRHs)			Spring (18 CRHs)		
2 nd Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 223	Microbiology	(3+1)	BIO 224	Human Physiology & Anatomy	(3+1)
	CHM 211	Organic Chemistry I	(3+1)	CHM 212	Organic Chemistry II	(3+1)
	PHU 103	Physics I	(3+1)	PHU 124	Physics II	(3+1)
	STA 212	Probability & Statistics	(3+0)	ENV 205	Environmental Science & Sustainability	(3+0)
	***	Science Elective I	(3+0)	AI 102	AI for Everyone: Foundation and Applications	(3+0)
	Fall (17 CRHs)			Spring (18 CRHs)		
3 rd Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 346	Biochemistry I	(3+1)	BIO 325	Conservation Biology	(3+0)
	CHM 310	Instrumental Analysis	(3+1)	LSR 302	Research Methodology	(3+0)
	ENV 305	Environmental Health	(3+0)	ENV 330	Energy & Sustainability	(3+0)
	BIO 315	Genetics	(3+0)	ENV 410	Environmental Monitoring	(3+0)
	***	Major Elective I	(3+0)	***	Major Elective II	(3+0)
				***	Science Elective II	(3+0)
	LSR 390	Life Sciences Summer Internship (0 CRHs)				
	Fall (12 CRHs)			Spring (12 CRHs)		
4 th Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	ENV 420	Waste Management	(3+0)	***	Advanced Sci. Elective I	(3+0)
	ENV 425	Environ. Policy & Economics	(3+0)	***	Advanced Sci. Elective II	(3+0)
	LSR 421	Life Science Research Project I	(0+3)	LSR 422	Life Science Research Project II	(0+3)
	BIO 440	Biotechnology	(3+0)	LSR 423	Integrative Life Science Research Seminar	(3+0)

*** Multiple courses to choose from (see program curriculum for the list of courses).

Study Plan: Biomedical Science						
	Fall (20 CRHs)			Spring (20 CRHs)		
1 st Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 101	General Biology I	(3+1)	BIO 112	General Biology II	(3+1)
	CHM 101	General Chemistry I	(3+1)	CHM 112	General Chemistry II	(3+1)
	CSC 101	Introduction to Computer Science	(3+0)	***	Arts & Humanities Elective II	(3+0)
	MAT 101	Calculus I	(3+0)	MAT 116	Analytical Methods	(3+0)
	ENG 101	University Writing	(3+0)	***	Social Sciences Elective I	(3+0)
	***	Arts & Humanities Elective I	(3+0)	***	Social Sciences Elective II	(3+0)
	Fall (18 CRHs)			Spring (18 CRHs)		
2 nd Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 223	Microbiology	(3+1)	BIO 224	Human Physiology & Anatomy	(3+1)
	CHM 211	Organic Chemistry I	(3+1)	CHM 212	Organic Chemistry II	(3+1)
	PHU 103	Physics I	(3+1)	PHU 124	Physics II	(3+1)
	STA 212	Probability & Statistics	(3+0)	ENV 205	Environmental Science & Sustainability	(3+0)
	***	Science Elective I	(3+0)	AI 102	AI for Everyone: Foundation and Applications	(3+0)
	Fall (18 CRHs)			Spring (17 CRHs)		
3 rd Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BIO 346	Biochemistry I	(3+1)	BMS 315	Body Fluid Analysis	(3+1)
	CHM 310	Instrumental Analysis	(3+1)	LSR 302	Research Methodology	(3+0)
	BMS 305	Clinical Chemistry	(3+1)	BMS 320	Clinical Microbiology and Parasitology	(3+1)
	BIO 315	Genetics	(3+0)	***	Major Elective II	(3+0)
	***	Major Elective I	(3+0)	***	Science Elective II	(3+0)
	LSR 390	Life Sciences Summer Internship (0 CRHs)				
	Fall (12 CRHs)			Spring (12 CRHs)		
4 th Year	Course Code	Course Title	CRHs	Course Code	Course Title	CRHs
	BMS 425	Hematology and Blood Banking	(3+0)	***	Advanced Sci. Elective I	(3+0)
	BMS 445	Medical Genetics	(3+0)	***	Advanced Sci. Elective II	(3+0)
	LSR 421	Life Science Research Project I	(0+3)	LSR 422	Life Science Research Project II	(0+3)
	BIO 440	Biotechnology	(3+0)	LSR 423	Integrative Life Science Research Seminar	(3+0)

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