

Bachelor of Science in Life Sciences

Program

College of Science and General Studies

Bachelor

Bachelor of Science (B.Sc.) in Life Sciences

The Bachelor of Science in Life Sciences offers two tracks for students to choose from: Biological Sciences & Nanotechnology, and Environmental Sciences & Sustainability. The first two years are common for all tracks, and in the 3rd year students start taking courses that are specific for the track of their choice. Student also have access to a variety of advanced electives courses to choose from including cancer biology, forensic science, medicinal chemistry, bioinformatics, and special topics. The Life Sciences Program requires a total of 134 credit hours for completing the program. This includes general education requirement & elective courses (23 credits), college requirement courses (25 credits), program requirement courses (53 credits), track requirement courses (18 credits), program electives (15 credits), and summer internship (0 credits). Student who meets requirement conditions may take one or more graduate courses to fulfill program graduation requirements (maximum of nine credit-hours).

General Education Requirements

Item #	Title	Credits
ARB 101	Arabic Language I	2
ARB 112	Arabic Language II	2
ENG 101	Freshman English 1	3
ENG 112	Freshman English II	3
ISL 101	Islamic Studies I	2
ISL 112	Islamic Studies II	2

Free Electives

- Any courses offered at Alfaisal
- Transferred courses offered by other institutions (pre-approvals by CoS and SA are required)

Humanities & Social Science Electives

1 course, 3 Credit Hours

Item #	Title	Credits
ANT 101	Introduction to Sociocultural Anthropology	3
HIS 101	Islamic Civilization and Mediaeval Europe	3
PSY 101	Introduction to Psychology	3
SOC 101	Introduction to Sociology	3

*Any other Humanity & Social Sciences courses (FRE 101, GER 101, SPN 101, etc.)

Science Core Courses

Item #	Title	Credits
BIO 101	General Biology I	4
BIO 112	General Biology II	4
CHM 101	General Chemistry I	4
CHM 112	General Chemistry II	4
CSC 101	Introduction to Computer Science	3
MAT 105	Calculus for Biomedical Sciences I	3
MAT 116	Calculus for Biomedical Science II	3

Life Science Core Courses

Item #	Title	Credits
BIO 223	Microbiology	4
BIO 224	Human Physiology and Anatomy	4
BIO 346	Biochemistry I	4
BIO 440	Biotechnology	3
CHM 211	Organic Chemistry I	4
CHM 212	Organic Chemistry II	4
CHM 310	Introduction to Instrumental Analysis	4
ENV 205	Environmental Science & Sustainability	3
LSR 302	Research Methodology	3
LSR 390	Life Science Summer Internship	0
LSR 421	Life Science Research Project I	3
LSR 422	Life Science Research Project II	3
LSR 423	Integrative Life Science Research Seminar	3
PHU 205	Mechanics for Life Sciences	4
PHU 216	Electromagnetism and Optics for Life Sciences	4
STA 211	Probability and Statistics	3

Biological Sciences & Nanotechnology (BSN) Track

Item #	Title	Credits
BIO 345	Molecular Biology I	4
BIO 357	Molecular Biology II	4
BIO 358	Biochemistry II	4
BIO 405	Human Genetics	3
BSN 430	Nanomaterials & Nanotechnology	3

Environmental Sciences & Sustainability (ESS) Track

Item #	Title	Credits
BIO 325	Conservation Biology	3
ENV 305	Environmental Health	3
ENV 330	Energy & Sustainability	3
ENV 410	Environmental Monitoring	3
ENV 420	Waste Management	3
ENV 425	Environmental Policy & Economics	3

Program Electives

5 Courses, 15 Credit Hours

Item #	Title	Credits
CHM 213	Analytical Chemistry	3
CHM 232	Organic chemistry	4
CHM 331	Medicinal Chemistry	3
CHM 332	Environmental Chemistry	3
ENV 310	Environmental Toxicology	3
ENV 315	Earth Systems	3
SCI 310	Forensic Science	3
SCI 321	Immunology	3
SCI 322	Cancer Biology	3
SCI 323	Signal Transduction	3
SCI 325	Bioinformatics and Computational Genomics	
SCI 326	Virology	3
LST 421	Life Science Special Topics I	3
LST 422	Life Sciences Special Topics II	3

*Student may take courses from other tracks or a graduate course with approval.

Life Sciences 4-Year Study Plans

Choose one track:

Study Plan: Biological Sciences & Nanotechnology

Fall (Year 1)

Item #	Title	Credits
BIO 101	General Biology I	4
CHM 101	General Chemistry I	4
CSC 101	Introduction to Computer Science	3
MAT 105	Calculus for Biomedical Sciences I	3
ENG 101	Freshman English 1	3
ISL 101	Islamic Studies I	2

Spring (Year 1)

Item #	Title	Credits
BIO 112	General Biology II	4
CHM 112	General Chemistry II	4
	Humanity Course Elective	3
MAT 116	Calculus for Biomedical Science II	3
ENG 112	Freshman English II	3
ISL 112	Islamic Studies II	2

Fall (Year 2)

Item #	Title	Credits
BIO 223	Microbiology	4
CHM 211	Organic Chemistry I	4
PHU 205	Mechanics for Life Sciences	4
STA 211	Probability and Statistics	3
ARB 101	Arabic Language I	2

Spring (Year 2)

Item #	Title	Credits
BIO 224	Human Physiology and Anatomy	4
CHM 212	Organic Chemistry II	4
PHU 216	Electromagnetism and Optics for Life Sciences	4
ENV 205	Environmental Science & Sustainability	3
ARB 112	Arabic Language II	2
	Free Elective	3

Fall (Year 3)

Item #	Title	Credits
BIO 346	Biochemistry I	4
LSR 302	Research Methodology	3
BIO 345	Molecular Biology I	4
	Advanced Prog. Elective I	3
	Advanced Prog. Elective II	3

[BIO 345](#): Track specific course

Spring (Year 3)

Item #	Title	Credits
BIO 358	Biochemistry II	4
CHM 310	Introduction to Instrumental Analysis	4
BIO 357	Molecular Biology II	4
	Advanced Prog. Elective III	3
	Advanced Prog. Elective IV	3

[BIO 358](#), [BIO 357](#): Track specific courses

Summer (Year 3)

Item #	Title	Credits
LSR 390	Life Science Summer Internship	0

Fall (Year 4)

Item #	Title	Credits
BIO 405	Human Genetics	3
BSN 430	Nanomaterials & Nanotechnology	3
LSR 421	Life Science Research Project I	3
LST 421	Life Science Special Topics I	3

[BIO 405](#), [BSN 430](#): Track specific courses

Spring (Year 4)

Item #	Title	Credits
BIO 440	Biotechnology	3
	Free Elective	3
LSR 422	Life Science Research Project II	3
LSR 423	Integrative Life Science Research Seminar	3

Study Plan: Environmental Sciences & Sustainability

Fall (Year 1)

Item #	Title	Credits
BIO 101	General Biology I	4
CHM 101	General Chemistry I	4
CSC 101	Introduction to Computer Science	3
MAT 105	Calculus for Biomedical Sciences I	3
ENG 101	Freshman English 1	3
ISL 101	Islamic Studies I	2

Spring (Year 1)

Item #	Title	Credits
BIO 112	General Biology II	4
CHM 112	General Chemistry II	4
	Humanity Course Elective	3
MAT 116	Calculus for Biomedical Science II	3
ENG 112	Freshman English II	3
ISL 112	Islamic Studies II	2

Fall (Year 2)

Item #	Title	Credits
BIO 223	Microbiology	4
CHM 211	Organic Chemistry I	4
PHU 205	Mechanics for Life Sciences	4
STA 211	Probability and Statistics	3
ARB 101	Arabic Language I	2

Spring (Year 2)

Item #	Title	Credits
BIO 224	Human Physiology and Anatomy	4
CHM 212	Organic Chemistry II	4
PHU 216	Electromagnetism and Optics for Life Sciences	4
ENV 205	Environmental Science & Sustainability	3
ARB 112	Arabic Language II	2
	Free Elective	3

Year 3 (Fall)

Item #	Title	Credits
BIO 346	Biochemistry I	4
LSR 302	Research Methodology	3
ENV 305	Environmental Health	3
	Advanced Prog. Elective I	3
	Advanced Prog. Elective II	3
	Free Elective	3

[ENV 305](#): Track specific course

Spring (Year 3)

Item #	Title	Credits
BIO 325	Conservation Biology	3
CHM 310	Introduction to Instrumental Analysis	4
ENV 330	Energy & Sustainability	3
	Advanced Prog. Elective III	3
	Advanced Prog. Elective IV	3

[BIO 325](#), [ENV 330](#): Track specific courses

Summer (Year 3)

Item #	Title	Credits
LSR 390	Life Science Summer Internship	0

Fall (Year 3)

Item #	Title	Credits
ENV 310	Environmental Toxicology	3
ENV 420	Waste Management	3
LSR 421	Life Science Research Project I	3
LST 421	Life Science Special Topics I	3

[ENV 310](#), [ENV 420](#): Track specific courses

Spring (Year 4)

Item #	Title	Credits
BIO 440	Biotechnology	3
ENV 425	Environmental Policy & Economics	3
LSR 422	Life Science Research Project II	3
LSR 423	Integrative Life Science Research Seminar	3

[ENV 425](#): Track specific courses