

Kingdom of Saudi Arabia
Ministry of Education
Prince Sattam bin Abdulaziz University
College of Science & Humanities
The Department of Chemistry



المملكة العربية السعودية
وزارة التعليم
جامعة الأمير سطاتم بن عبدالعزيز
كلية العلوم والدراسات الإنسانية
قسم الكيمياء

Study Plan for Chemistry Program

Fourth Edition (1443)

(Trimesters)

Requirements for obtaining a Bachelor degree in Chemistry

Students must successfully complete a total of (188) credits to earn a bachelor's degree in Chemistry as shown in the following table:

Requirements	No. of Courses	Credit Hours
Preparatory year requirements	12	46
University requirements	4	8
Specialized compulsory requirements (inside department)	26	97
Specialized elective requirements (inside department)	3	9
Compulsory requirements (outside department)	3	14
Elective requirements (outside department)	2	8
Free courses	3	6
Total	53	188

First: Preparatory Year Requirements (46 credits):

Course Code	Course Name	Credit Hours	Prerequisite
ENGL 1210	Reading Skills	5	---
ENGL 1220	Writing Skills	5	---
ENGL 1230	Conversation and listening skills	5	---
ENGL 1604	English for technical purposes	5	---
ENGL 1606	English for academic purposes	4	---
MATH 1050	Differential Calculus	4	---
MATH 1060	Integral Calculus	4	MATH 1050
PHYS 1010	General Physics (1)	5	---
MC 1400	Communication Skills	2	---
CT 1400	Computer Skills	3	---
IC 101	Introduction of Islamic Culture	2	---
ARAB 101	Language Skills	2	---
Total Credit Hours		46	

Second: University Requirements (8 credits):

Course Code	Course Name	Units	Prerequisite
IC 102	The Islam and Society Building	2(2,0,0)	---
IC 103	The foundation of the Economic system in Islam	2(2,0,0)	---
IC 104	Foundations of political system in Islam	2(2,0,0)	---
ARAB 103	Arabic Editing	2(2,0,0)	---
Credit Hours		8(8, 0, 0)	

Third: Department Requirements:

A) Compulsory Courses at the Department (97 credits):

Course Code	Course Name	Units	Prerequisite
CHEM 2010	General Chemistry (1)	5(4·0·1)	---
CHEM 2020	General Chemistry (2)	5(4·0·1)	---
CHEM -2110	Inorganic Chemistry (1)	4(4·0·0)	CHEM 2010
CHEM 3120	Inorganic Chemistry (2)	4(4·0·0)	CHEM -2110
CHEM -3130	Coordination Chemistry	4(3·0·1)	CHEM 3120
CHEM 4140	Organometallic Chemistry	3(3·0·0)	CHEM -2110, CHEM -2410
CHEM -4150	Selected Topics in Inorganic Chemistry	3(3·0·0)	CHEM -3130
CHEM -2210	Analytical Chemistry (1)	5(4·0·1)	CHEM 2010
CHEM 3220	Analytical Chemistry (2)	5(4·0·1)	CHEM -2210
CHEM -3230	Spectroscopic Methods of Analysis	4(3·0·1)	CHEM 3220
CHEM 4240	Chromatography	4(3·0·1)	CHEM 3220
CHEM 3310	Physical Chemistry (1)	5(4·0·1)	CHEM 2020
CHEM 3320	Physical Chemistry (2)	5(4·0·1)	CHEM 3310
CHEM 4330	Electrochemistry	3(3·0·0)	CHEM 3320
CHEM -4340	Surface and Catalysis Chemistry	3(3·0·0)	CHEM 3320
CHEM -2410	Organic Chemistry (1)	5(4·0·1)	CHEM 2010
CHEM 3420	Organic Chemistry (2)	5(4·0·1)	CHEM -2410
CHEM -3430	Polymer Chemistry	3(3·0·0)	CHEM 3420
CHEM 4440	Natural Products Chemistry	3(3·0·0)	CHEM 3420
CHEM 4450	Organic Reaction Mechanism	3(3·0·0)	CHEM 3420

CHEM -4460	Organic Spectroscopy	4(3:0:1)	CHEM 3420
CHEM -4470	Petroleum Chemistry	3(3:0:0)	CHEM 3420
CHEM -4980	Research Project (1)	2(2:0:0)	Passing 144 credit units
CHEM 4990	Research Project (2)	3(2:0:1)	CHEM -4980
CHEM 4010	Ethics for Chemistry	2(2:0:0)	---
CHEM 4590	Field Training	2(0:0:6)	Passing 130 credit units
Credit Hours		97(79, 0, 18)	

B) Obligatory Courses at other Departments (14 credits):

Course Code	Course Name	Units	Prerequisite
PHYS 2310	General Physics (2)	5(3:1:1)	PHYS 1010
BIOCHEM -3010	General Biochemistry	4(3:0:1)	CHEM 2010
BIO 2010	General Biology (1)	5(4:0:1)	---
Credit Hours		14(10, 1, 3)	

C) Elective Courses at the Department (9 credits):

The student selects three courses from the following list:

Course Code	Course Name	Units	Prerequisite
CHEM -4160	Applications of Transition Metals	3(3,0,0)	CHEM -3130
CHEM -4170	Nuclear and Radiochemistry	3(3,0,0)	CHEM -2110
CHEM -4250	Statistical Methods in Analytical Chemistry	3(3,0,0)	CHEM 3220
CHEM 4260	Environmental and Pollution Chemistry	3(3,0,0)	CHEM -2110
CHEM -4370	Corrosion Chemistry	3(3,0,0)	CHEM -4340
CHEM -4350	Industrial Chemistry	3(3,0,0)	CHEM 3320
CHEM -4360	Quantum Chemistry	3(3,0,0)	CHEM 3320
CHEM -4480	Carbohydrates Chemistry	3(3,0,0)	CHEM 3420
CHEM 4490	Fundamentals of Nanochemistry	3(3,0,0)	CHEM 2010

D) Elective Courses at other Departments (8 credits):

The student selects two courses from the following list:

Course Code	Course Name	Units	Prerequisite
STAT 2010	Fundamentals of Statistics and Probabilities	4(4,0,0)	MATH 1060
MATH 3410	Differential equations for physics students	4(4,0,0)	MATH 1060
BIO 2410	Animal Physiology	4(3,0,1)	BIO 2010
PHYS 2110	Optics (1)	4(4,0,0)	PHYS 1010
PHYS 2230	Advanced Physics	4(4,0,0)	PHYS 1010
PHYS 2410	Thermodynamics (1)	4(4,0,0)	PHYS 1010 MATH 1060

E) Free Courses (6 credits):

Students may select up to six credit hours for the development of their professional skills either from the core courses or outside the College of Science and Humanity Studies. The selected courses must meet the prerequisite.

Study Plan

First Year (Preparatory) Semester (1):

Course Code	Course Name	Units	Prerequisite
MATH 1050	Deferential Calculus	4(2,2,0)	--
IC 101	Introduction of Islamic culture	2(2,0,0)	--
ENGL 1210	Reading Skills	5(2,3,0)	--
ENGL 1220	Writing Skills	5(2,3,0)	--
Credit Hours		16 (8, 8, 0)	

First Year (Preparatory) Semester (2):

Course Code	Course Name	Units	Prerequisite
MATH 1060	Integral Calculus	4(2,2,0)	MATH 1050
ARAB 101	Language Skills	2(2,0,0)	---
ENGL 1230	Conversation and listening skills	5(2,3,0)	---
CT 1400	Computer Skills	3(2,0,1)	---
Credit Hours		14(8,5,1)	---

First Year (Preparatory) Semester (3):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
PHYS 1010	General physics (1)	5(3,1,1)	---	---
MC 1400	Communication Skills	2(2,0,0)	---	---
ENGL 1604	English for technical purposes	5(4,0,1)	---	---
ENGL 1606	English for academic purpose	4(2,2,0)	-----	---
Credit Hours		16(11,3,2)		

Second Year Semester (4):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM 2010	General Chemistry (1)	5(4,0,1)	---	---
CHEM 2020	General Chemistry (2)	5(4,0,1)	---	---
BIO 2010	General Biology (1)	5(4,0,1)	---	---
IC 102	The Islam and Society Building	2(2,0,0)	---	---
Credit Hours		17(14, 0, 3)		

Second Year Semester (5):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM -2210	Analytical Chemistry (1)	5(4,0,1)	CHEM 2010	---
CHEM -2410	Organic Chemistry (1)	5(4,0,1)	CHEM 2010	---
PHYS 2310	General Physics (2)	5(4,0,1)	PHYS 1010	---
IC 103	The foundation of the Economic system in Islam	2(2,0,0)	---	---
Credit Hours		17(14, 0, 3)		

Second Year Semester (6):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM 3310	Physical Chemistry (1)	5(4,0,1)	CHEM 2020	---
CHEM -2110	Inorganic Chemistry (1)	4(4,0,0)	CHEM 2010	---
CHEM 3220	Analytical Chemistry (2)	5(4,0,1)	CHEM -2210	---
IC 104	Foundations of political system in Islam	2(2,0,0)	---	---
Credit Hours		16(14, 0, 2)		

Third Year Semester (7):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM 3420	Organic Chemistry (2)	5(4,0,1)	CHEM -2410	---
CHEM 3320	Physical Chemistry (2)	5(4,0,1)	CHEM 3310	---
BIOCHEM -3010	General Biochemistry	4(3,0,1)	CHEM 2010	---
Arab 103	Arab Editing	2(2,0,0)	---	---
Credit Hours		16(13, 0, 3)		

Third Year Semester (8):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM 3120	Inorganic Chemistry (2)	4(4,0,0)	CHEM -2110	---
CHEM -3230	Spectroscopic Methods of Analysis	4(3,0,1)	CHEM 3220	---
CHEM -3430	Polymer Chemistry	3(3,0,0)	CHEM 3420	---
CHEMXXXX	Elective internal course	3(3,0,0)	---	---
Xxxx	Free Course	2(2,0,0)	---	---
Credit Hours		16(15, 0, 1)		

Third Year Semester (9):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM 4330	Electrochemistry	3(3,0,0)	CHEM 3320	---
CHEM -3130	Coordination Chemistry	4(3,0,1)	CHEM 3120	---
CHEM 4240	Chromatography	4(3,0,1)	CHEM 3220	---
CHEM 4440	Natural Products Chemistry	3(3,0,0)	CHEM 3420	---
Xxxx	Free Course	2(2,0,0)	---	---
Credit Hours		16(14, 0, 2)		

Fourth Year Semester (10):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM -4340	Surface and Catalysis Chemistry	3(3,0,0)	CHEM 3320	---
CHEM 4450	Organic Reaction Mechanism	3(3,0,0)	CHEM 3420	---
CHEMXXXX	Elective internal course	3(3,0,0)	---	---
Xxxx	Free Course	2(2,0,0)	---	---
CHEM 4590	Field Training	2(0,0,6)	Passing 130 credit units	---
Credit Hours		13(11, 0, 6)		

Fourth Year Semester (11):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM -4150	Selected Topics in Inorganic Chemistry	3(3,0,0)	CHEM -3130	---
CHEM -4460	Organic Spectroscopy	4(3,0,1)	CHEM 3420	---
CHEM 4140	Organometallic Chemistry	3(3,0,0)	CHEM -2110, CHEM -2410	---
CHEM -4980	Research Project (1)	2(2,0,0)	Passing 144 credit units	---
Xxxx	Elective external course	4	---	---
Credit Hours		16		

Fourth Year Semester (12):

Course Code	Course Name	Units	Prerequisite	Accompanied Requirement
CHEM -4470	Petroleum Chemistry	3(3,0,0)	CHEM 3420	---
CHEM 4010	Ethics for chemistry	2(2,0,0)	---	---
CHEMXXXX	Elective internal course	3(3,0,0)	---	---
Xxxx	Elective external course	4	---	---
CHEM 4990	Research Project (2)	3(2,0,1)	CHEM -4980	---
Credit Hours		15		

Service Courses:

The courses offered by the Department of Chemistry to other departments inside and outside the College of Science and Humanity Studies.

Course Code	Course Name	Units	Remarks
CHEM 1010	General Chemistry for Engineering Students	5(4,0,1)	---
CHEM 2170	Fundamentals of Inorganic Chemistry for Physics Students	3(3,0,0)	---
CHEM 2470	Fundamentals of Organic Chemistry for Physics Students	3(3,0,0)	---
CHEM 2480	Organic Chemistry for Biology Students	4(3,0,1)	---
CHEM 106	Organic Chemistry for Health College Students	3(3,0,0)	---

Courses for labor market:

Course code	Course Title	Units	Remarks
CHEM 4140	Organometallic Chemistry	3(3,0,0)	---
CHEM -3230	Spectroscopic Methods of Analysis	4(3,0,1)	---
CHEM 4240	Chromatography	4(3,0,1)	---
CHEM 4260	Environmental and Pollution Chemistry	3(3,0,0)	---
CHEM 4440	Natural Products Chemistry	3(3,0,0)	---
CHEM -4350	Industrial Chemistry	3(3,0,0)	---
CHEM -4340	Surface and Catalysis Chemistry	3(3,0,0)	---
CHEM -4470	Petroleum Chemistry	3(3,0,0)	---
CHEM 4490	Fundamentals of Nanochemistry	3(3,0,0)	---
CHEM -4980	Research Project (1)	2(2,0,0)	---