(For students admitted in 2015-16 under the 4-year degree)

BSc in Chemistry

In addition to the requirements of their major programs, students are required to complete the University and School requirements for graduation. For details please refer to the respective sections on this website.

Some courses used to fulfill Major and/or School Requirements can also fulfill University Common Core Requirements. Students may reuse a maximum of 9 credits of these courses to count towards Common Core Requirements.

Students may use no more than 6 credits earned from courses offered in pure online delivery mode to satisfy the graduation requirements of a degree program. This 6-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Major Requirements

Students MUST take the following courses prior to enrollment into the major

Major Pre-requisite course(s)

			Credit(s) attained
CHEM		Note: CHEM 1010 OR CHEM 1020	3
CHEM	1010	General Chemistry IA	3
CHEM	1020	General Chemistry IB	3
CHEM	1030	General Chemistry II	3

Required Course(s)

			Credit(s) attained
CHEM	1050	Laboratory for General Chemistry I	1
CHEM	1055	Laboratory for General Chemistry II	1
CHEM	2110	Organic Chemistry I	3
CHEM	2150	Organic Chemistry Laboratory	1
CHEM	2210	Inorganic Chemistry I	3
CHEM	2250	Inorganic Chemistry Laboratory	1
CHEM	2310	Fundamentals of Analytical Chemistry	3
CHEM	2350	Analytical Chemistry Laboratory	1
CHEM	2410	Physical Chemistry I: Equilibrium Thermodynamics and Statistical Mechanics	3
CHEM	2450	Physical Chemistry Laboratory	1
CHEM	3120	Organic Chemistry II	3

CHEM	3220	Inorganic Chemistry II	3
CHEM	3320	Instrumental Analysis	3
CHEM	3420	Physical Chemistry II	3
CHEM	3550	Synthetic Chemistry Laboratory	2
CHEM	3555	Molecular Characterization Chemistry Laboratory	2
CHEM		Note: CHEM 4689 OR CHEM 4691 OR (SCIE 3500 AND SCIE 4500) (Students following IRE Track can only use (SCIE 3500 AND SCIE 4500) to fulfill the requirement)	3-6
CHEM	4689	Capstone Project	3
CHEM	4691	Capstone Research I	3
SCIE	3500	IRE Research Project I	3
SCIE	4500	IRE Research Project II	3
MATH		Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]	4-7
MATH	1012	Calculus IA	4
MATH	1013	Calculus IB	3
MATH	1014	Calculus II	3
MATH	1020	Accelerated Calculus	4
MATH	1023	Honors Calculus I	3
MATH	1024	Honors Calculus II	3
MATH	2351	Introduction to Differential Equations	3
LANG	3012	Laboratory Report Writing for Chemistry Students	1
LANG	4012	English for Chemistry Capstone Projects	2

Elective(s)

		Minimum credit(s) required
CHEM	CHEM 3000-level or above Elective (Any 1 course (3 credits) of the subject and level specified. Students to graduate with a Chemistry Option or IRE Track are exempted from this requirement.)	0-3

Track Study

International Research Enrichment Track

Students in the IRE Track should also take SCIE 3500 and SCIE 4500 as specified in the major requirements. Subject to approval of the program office, students may reuse CHEM 4430 to count towards the requirements of Chemistry Options.

Required Course(s)

			Credit(s) attained
CHEM	4430	Symmetry in Chemistry and Spectroscopy	3
CHEM	4680	Undergraduate Research	3

Student may opt to graduate with or without an option. Students who take an option MUST complete all requirements specified in addition to the major requirements.

Option(s)

Biomolecular Chemistry Option

Required Course(s)

			Credit(s) attained
CHEM	4150	Biomolecular Synthesis Laboratory	1
CHEM	4155	Biomolecular Characterization Laboratory	1

Elective Course(s)			Minimum credit(s) required
CHEM		Chemistry Electives [Course(s) from the specified elective list, of which at least 2 courses must be taken from the Core Area. Courses taken as Required/Elective Courses of another Chemistry Option may not be counted towards this elective requirement.]	12
Core Area			
CHEM	4110	Structural Elucidation in Organic Chemistry	3
CHEM	4120	Biomolecular Chemistry	3
CHEM	4130	Medicinal Chemistry	3
CHEM	4340	Bioanalytical Techniques	3
CHEM	4410	Physical Chemistry in Biological Applications	3
Others			
CHEM	3010	Great Ideas in Chemistry	3
CHEM	3610	Chemistry Internship	2-3

CHEM	4140	Intermediate Organic Chemistry	3
CHEM	4210	Solid State Chemistry	3
CHEM	4220	Materials Chemistry	3
CHEM	4230	Materials Characterization Method	3
CHEM	4240	Intermediate Inorganic Chemistry	3
CHEM	4310	Environmental Chemistry	3
CHEM	4320	Environmental Analytical Chemistry	3
CHEM	4330	Separation Science	3
CHEM	4430	Symmetry in Chemistry and Spectroscopy	3
CHEM	4620	Organometallic Chemistry	3
CHEM	4640	Chemistry for Advanced Solar Cell Technologies	3
CHEM	4680	Undergraduate Research	3
CHEM	4692	Capstone Research II	3

Environmental and Analytical Chemistry Option

Required Course(s)

			Credit(s) attained
CHEM	4350	Environmental Chemistry Laboratory	1
CHEM	4355	Instrumental Analytical Chemistry Laboratory	1

Elective Course(s)

			Minimum credit(s) required
CHEM		Chemistry Electives [Course(s) from the specified elective list, of which at least 2 courses must be taken from the Core Area. Courses taken as Required/Elective Courses of another Chemistry Option may not be counted towards this elective requirement.]	12
Core Area			
CHEM	4310	Environmental Chemistry	3
CHEM	4320	Environmental Analytical Chemistry	3
CHEM	4330	Separation Science	3
CHEM	4340	Bioanalytical Techniques	3
Others			
CHEM	3010	Great Ideas in Chemistry	3
CHEM	3610	Chemistry Internship	2-3
CHEM	4110	Structural Elucidation in Organic Chemistry	3
CHEM	4120	Biomolecular Chemistry	3
CHEM	4130	Medicinal Chemistry	3
CHEM	4140	Intermediate Organic Chemistry	3
CHEM	4210	Solid State Chemistry	3
CHEM	4220	Materials Chemistry	3
CHEM	4230	Materials Characterization Method	3
CHEM	4240	Intermediate Inorganic Chemistry	3

CHEM	4410	Physical Chemistry in Biological Applications	3
CHEM	4430	Symmetry in Chemistry and Spectroscopy	3
CHEM	4620	Organometallic Chemistry	3
CHEM	4640	Chemistry for Advanced Solar Cell Technologies	3
CHEM	4680	Undergraduate Research	3
CHEM	4692	Capstone Research II	3

Materials Chemistry Option

Required Course(s)

			Credit(s) attained
CHEM	4250	Materials Preparation Laboratory	1
CHEM	4255	Materials Characterization Laboratory	1

Elective Course(s)

			Minimum credit(s) required
CHEM		Chemistry Electives [Course(s) from the specified elective list, of which at least 2 courses must be taken from the Core Area. Courses taken as Required/Elective Courses of another Chemistry Option may not be counted towards this elective requirement.]	12
Core Area			
CHEM	4210	Solid State Chemistry	3
CHEM	4220	Materials Chemistry	3
CHEM	4230	Materials Characterization Method	3
CHEM	4640	Chemistry for Advanced Solar Cell Technologies	3
Others			
CHEM	3010	Great Ideas in Chemistry	3
CHEM	3610	Chemistry Internship	2-3
CHEM	4110	Structural Elucidation in Organic Chemistry	3
CHEM	4120	Biomolecular Chemistry	3
CHEM	4130	Medicinal Chemistry	3
CHEM	4140	Intermediate Organic Chemistry	3
CHEM	4240	Intermediate Inorganic Chemistry	3
CHEM	4310	Environmental Chemistry	3
CHEM	4320	Environmental Analytical Chemistry	3
CHEM	4330	Separation Science	3
CHEM	4340	Bioanalytical Techniques	3
CHEM	4410	Physical Chemistry in Biological Applications	3
CHEM	4430	Symmetry in Chemistry and Spectroscopy	3
CHEM	4620	Organometallic Chemistry	3
CHEM	4680	Undergraduate Research	3
CHEM	4692	Capstone Research II	3

Pure Chemistry Option

Required Course(s)

			Credit(s) attained
CHEM	4430	Symmetry in Chemistry and Spectroscopy	3
CHEM	4550	Advanced Synthetic Laboratory	1
CHEM	4555	Advanced Molecular Characterization Laboratory	1

Elective Course(s)

			Minimum credit(s) required
CHEM		Chemistry Electives [Course(s) from the specified elective list. Courses taken as Required/Elective Courses of another Chemistry Option may not be counted towards this elective requirement.]	9
CHEM	3010	Great Ideas in Chemistry	3
CHEM	3610	Chemistry Internship	2-3
CHEM	4110	Structural Elucidation in Organic Chemistry	3
CHEM	4120	Biomolecular Chemistry	3
CHEM	4130	Medicinal Chemistry	3
CHEM	4140	Intermediate Organic Chemistry	3
CHEM	4210	Solid State Chemistry	3
CHEM	4220	Materials Chemistry	3
CHEM	4230	Materials Characterization Method	3
CHEM	4240	Intermediate Inorganic Chemistry	3
CHEM	4310	Environmental Chemistry	3
CHEM	4320	Environmental Analytical Chemistry	3
CHEM	4330	Separation Science	3
CHEM	4340	Bioanalytical Techniques	3
CHEM	4410	Physical Chemistry in Biological Applications	3
CHEM	4620	Organometallic Chemistry	3
CHEM	4640	Chemistry for Advanced Solar Cell Technologies	3
CHEM	4680	Undergraduate Research	3
CHEM	4692	Capstone Research II	3