CUHK – University of Manchester Dual Degree Programme in Chemistry
Applicable to students admitted in 2024-25

Major Programme Requirement

Students are required to complete a minimum of 68 units of courses as follows:

		Units
1.	Faculty Package: Group B: CHEM1070 Group D: PHYS1001 or 1002 or 1111 A course from the following: Group A: LSCI1001 or 1002 or 1012 Group C: MATH1520 (preferred) or 1010 (preferred) or 1018 or 1550 Group E: STAT1011 or 1012	9
2.	Required Courses: CHEM1300, 2110, 2120, 2200, 2270, 2300, 2310, 2400, 2860, 2870, 3130, 3220, 3320, 3410, 3810, 3830, 3860, 3870, 4030/4040 (capstone courses)	49
3.	Elective Courses:	10
(a)	One course from: CHEM3230 or 3340	
(b)	8 units from the following lists, of which at most one CHEM course at 3000 level and one non-CHEM course: <u>Undergraduate electives</u>: CHEM3420, 3820, 3840, 4100, 4200, 4280, 4300, 4303, 4400, 4440, 4471, 4630, 4640, 4710, 4730, 4780, 4784, 4785, 4786, 4788 <u>CHEM courses at 5000 level</u> (with approval from the Department): CHEM 5301, 5303, 5540, 5550, 5560, 5620, 5642, 5680, 5780, 5784, 5785, 5910, 5920 <u>Non-CHEM courses</u>: BCHE3050#, CMBI4002#, ENSC4525#, 4535#, EESC3220#, PHYS3021#, 3022#, 4031#, 4440#	
	Total:	**68**

Explanatory Notes:

1. CHEM courses at 2000 and above level as well as those labeled as # will be included in the calculation of Major GPA for honours classification.
2. Potential students majoring in Chemistry are strongly recommended to take CHEM1870 as basic training to prepare for laboratory classes in upper years.
3. A student in the final year of attendance may, <u>under special circumstances</u> and with <u>written</u> approval from the Department, select CHEM4480 and/or 4490 to substitute up to two units of any lecture or laboratory courses in the Chemistry Programme.

[a] Students may select research-oriented course(s), as approved by the Major Programme, to substitute up to 4 units for fulfillment of Research Courses requirement.

[b] Students must complete any exchange/research/internship programme(s) offered by the University, Colleges, the Faculty of Science or Major Programme, as approved by the Major Programme, to fulfill the Experiential Learning requirement. Students are responsible for the extra costs incurred in the exchange/research/internship programme(s).

	Recommended Course Pattern for CUHK students in fulfillment of requirements of the Dual Undergraduate Degree Programme (DDP) with the University of Manchester (UoM) (BSc in Chemistry)	Units
First Year of Attendance (Study at CUHK)	1st term[a] Faculty Package: CHEM1070; PHYS1001 or 1002 or 1111 University Core Requirements: ELTU1001, 1 College GE course[b], 1 UGFN course, 1 PHED course, UGCP1001 Free Elective(s): CHEM1280[c]	 6 10-11 3
	2nd term[a] Faculty Package: LSCI1001 or 1002 or MATH1520 Major Required: CHEM1300, 2110, 2400 University Core Requirements: CHLT1001, 0-1 College GE course[b], 1 PHED course, ENGG1003 Free Elective(s): LSCI1001 or 1002 or MATH1520[c]	 3 6 7-9 3
	Summer Session[a] University Core Requirements: 1 UGEA course[d], 1 UGEC course[d]	 4
Second Year of Attendance (Study at CUHK)	1st term[a] Major Required: CHEM2120, 2200, 2300, 2860, 3320, 3410 University Core Requirements: ELTU2018 or 2019	 18 3
	2nd term[a] Major Required: CHEM2270, 2310, 2870, 3130 Major Elective(s): CHEM3230 or 3340 University Core Requirements: CHLT1002, 1 UGFH course, UGCP1002	 11 2 6
Third Year of Attendance (Study at UoM)	Mandatory courses: CHEM20212 (10 units), 20311 (10 units), 20312 (10 units), 20411 (10 units), 20412 (10 units), 20500 (10 units), 20611 (10 units), 22600 (30 units) Optional courses: two courses (with a total of 20 units) from CHEM20711, 20712, 20722, UCIL20022, 20031, 20032, 20112, 20122, 20132, 20142, 20211, 20282, 20311, 20822, 21301, 21302, 26002	120 units (with 15 units for fulfilment of the Major requirements to be transferred to CUHK)
Fourth Year of Attendance (Study at UoM)	Mandatory courses: CHEM30211 (10 units), 30311 (10 units), 30312 (10 units), 30411 (10 units), 30620 (40 units) Optional courses: three to four courses (with a total of 40 units) from CHEM30111, 30112, 30122, 30432, 30712, 30722, EART30252, HSTM31212, 30211, 33201, MCEL30011, 30012, 30022	120 units (with 8 units for fulfilment of the Major requirements to be transferred to CUHK)
	Units taken at CUHK:	**83-84**
	Units taken at UoM and recognized by CUHK:	**23**
	Total:	**106-107**[e]

Explanatory Notes:

[a] Students taking a term and a year load exceeding the maximum will need to seek approval from the Registrar. Students may also choose to take courses (e.g. GE course) during the summer session of Year 4.

[b] The recommended course pattern of College GE courses varies slightly depending on students' College affiliation. Students who are required to take 4 units of College GE should take two 2-unit courses at different terms.

[c] Free elective courses taken at CUHK can be transferred to fulfil the major requirements of UoM.

[d] Students should take one 2-unit UGEA course and one 2-unit UGEC course.

[e] Students are required to complete at least 46 units (out of 68) of major courses offered by CUHK.

Course List		
Course Code	*Course Title*	*Unit(s)*
CHEM1070	Principles of Modern Chemistry	3
CHEM1072	General Chemistry	3
CHEM1280	Introduction to Organic Chemistry and Biomolecules	3
CHEM1300	Fundamentals in Physical Chemistry	2
CHEM1380	Basic Chemistry for Engineers	3
CHEM1870	Chemistry Laboratory: STEM and Daily Life	2
CHEM2110	Fundamentals of Spectroscopic Analysis	2
CHEM2120	Main Group Chemistry	2
CHEM2200	Organic Functional Groups: Structure and Reactivity	3
CHEM2270	Student Oriented Teaching	1
CHEM2300	Thermodynamics and Chemical Equilibrium	3
CHEM2310	Atoms and Molecules	3
CHEM2382	Chemistry of Life	2
CHEM2400	Analytical Chemistry	2
CHEM2860	Integrated Chemistry Laboratory I	4
CHEM2868	Basic Integrated Chemistry Laboratory I	2
CHEM2870	Integrated Chemistry Laboratory II	4
CHEM2878	Basic Integrated Chemistry Laboratory II	2
CHEM3130	Transition Metal Chemistry	3
CHEM3220	Organic Reactions: Reactivity and Selectivity	2
CHEM3230	Conjugated Molecules and Synthetic Polymers	2
CHEM3320	Chemical Kinetics	3
CHEM3340	Materials Chemistry	2
CHEM3410	Instrumental Analysis	3
CHEM3420	Accreditation of Laboratory Tests	2
CHEM3810	Organic Chemistry Laboratory	2
CHEM3820	Advanced Organic Chemistry Laboratory	2
CHEM3830	Physical Chemistry Laboratory I	2
CHEM3840	Physical Chemistry Laboratory II	2
CHEM3860	Transition Metal Chemistry Laboratory	2
CHEM3870	Instrumental Analysis Laboratory	2
CHEM3880	Quality Testing Laboratory	2
CHEM4010	Problem-based Learning in Testing and Accreditation I	0
CHEM4020	Problem-based Learning in Testing and Accreditation II	4
CHEM4030	Problem-based Learning in Chemistry I	0
CHEM4040	Problem-based Learning in Chemistry II	4
CHEM4100	Advanced Inorganic Chemistry	3
CHEM4200	Bioorganic Chemistry and Chemical Biology	2
CHEM4280	Chemistry in Biofuel	2
CHEM4300	Advanced Physical Chemistry	2
CHEM4303	Introduction to Nanoscience and Nanotechnology	2
CHEM4400	Advanced Analytical Chemistry	2
CHEM4440	Food Testing and Environmental Analysis	3
CHEM4470	Internship in Accredited Laboratory	2
CHEM4471	Internship	1
CHEM4480	Undergraduate Special Project I	1
CHEM4490	Undergraduate Special Project II	1
CHEM4630	Asymmetric Organic Synthesis	2

CHEM4640	Pharmaceutical Chemistry	2
CHEM4710	Quantum Chemistry	2
CHEM4730	Special Topics in Chemistry	2
CHEM4780	Mass Spectrometry	2
CHEM4784	Bioanalytical Methods	2
CHEM4785	Industrial Chemistry	2
CHEM4786	Principles and Applications of Coating Chemistry	2
CHEM4788	Chemical Applications in Forensic Science	2
CHEM4960	Research in Chemical Science I	2
CHEM4970	Research in Chemical Science II	2
CHEM4980	Undergraduate Thesis I	0
CHEM4990	Undergraduate Thesis II	4
CHEM5301	Colloids and Surface Chemistry	2
CHEM5303	Recent Development of Nanoscience and Nanotechnology	2
CHEM5540	Bioinorganic Chemistry	2
CHEM5550	Organometallic Chemistry of f-Block Elements	2
CHEM5560	Organometallic Chemistry & Catalysis of d-Block Elements	2
CHEM5620	Synthetic Methods in Organic Chemistry	2
CHEM5642	Supramolecular Chemistry	2
CHEM5680	Advanced Chemical Biology	3
CHEM5780	Mass Spectrometry of Biomolecules	2
CHEM5784	Instrumental Analysis of Biomolecules	2
CHEM5785	Electrochemical Energy Conversion and Storage	2
CHEM5910	Current Topics in Chemistry	2
CHEM5920	Computational Chemistry	2
STAR2000	Undergraduate Research in Science I	1
STAR2050	Seminar I	1
STAR3000	Undergraduate Research in Science II	2
STAR3050	Seminar II	1
STAR4000	Undergraduate Research in Science III	3
STAR4050	Seminar III	1

Course List of University of Manchester