FACULTY OF SCIENCE

DEPARTMENT OF PURE AND APPLIED CHEMISTRY

CHEMISTRY WITH DATA SCIENCE

Master of Chemistry in Chemistry with Data Science
Bachelor of Science with Honours in Chemistry with Data Science
Bachelor of Science in Chemistry
Diploma of Higher Education in Chemical Sciences
Certificate of Higher Education in Chemical Sciences

These regulations are to be read in conjunction with General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

Place of study

1. In accordance with the General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level, some off-campus work may be required.

Curriculum

2. All students shall undertake an approved curriculum as follows:

First Year

Compulsory Modules

Module Code	Module Title	Level	Credits
CH106	Chemistry: Principles and Practice 1	1	20
CH107	Chemistry: Principles and Practice 2	1	20
CH108	Practical and Transferable Skills	1	20
MM116	Mathematics 1C	1	20
CH117	Python 101 for Chemists	1	20

Optional Modules

Students should select 20 credits chosen from:

Module Code	Module Title	Level	Credits
	Elective module(s)		20

Or other modules approved by the Programme Director. Not all optional modules will be available in each academic year.

Second Year

Compulsory Modules

Module Code	Module Title	Level	Credits
CH202	Inorganic Chemistry	2	20
CH205	Practical Physical and Applied Chemistry	2	20
CH208	Fundamental Organic Chemistry	2	20
CH212	Physical Chemistry 1	2	20
CH214	Practical Organic and Inorganic Chemistry	2	20
CH220	Chemical Informatics 1	2	20

Third Year

Compulsory Modules

Module Code	Module Title	Level	Credits
CH309	Physical Chemistry 2	3	20
CH313	Practical Physical, Applied, Forensic and Analytical Chemistry	3	20
CH315	Practical Organic and Inorganic Chemistry	3	20
CH325	Intermediate Organic Chemistry and Spectroscopy	3	20
CH326	Inorganic Chemistry, Structures and Spectroscopy	3	20
CH336	Chemical Informatics 2	3	20

Fourth Year

MChem Chemistry with Data Science students

Compulsory Modules

Module Code	Module Title	Level	Credits
CH450	Distance Learning	4	40

Students should select one of the following optional modules:

Optional Modules

Module Code	Module Title	Level	Credits
CH451	Industrial Placement	4	80
CH452	Research Placement	4	80
CH462	Knowledge Exchange Placement	4	80

BSc (Hons) Chemistry with Data Science students

Module Code	Module Title	Level	Credits
CH705*	Modules leading to degree in BSc (Hons) Chemistry with Data Science	4	120

*CH705 consists of the following modules:

Module Code	Module Title	Level	Credits
CH436	Honours Project and Dissertation	4	40
CH437	Career Skills	4	20
CH479*	Core Topics in Chemistry	4	20
CH704**	Data Science Specialisation Modules	4	40

* CH479 consists of the following modules:

Module Code	Module Title	Level	Credits
CH404	Cage and Cluster Molecules	4	5
CH406	Environmental Chemistry	4	5
CH485	Key Reactions in Organic Chemistry	4	5
CH703	Chemistry in the Excited State	4	5

** CH704 consists of the following modules:

Module Code	Module Title	Level	Credits
CH706	AI and Machine Learning	4	10
CH707	Computational Chemistry	4	10
CH708	Time Series Analysis	4	10
CH709	Software Engineering and High Performance Computing	4	10

Fifth Year

Compulsory Modules

Module Code	Module Title	Level	Credits
*CH543	MChem in Chemistry with Data Science	5	120

*CH543 consists of the following modules

Module Code	Module Title	Level	Credits
CH539**	Chemistry with Data Science Specialisation	5	40
CH591*	Core Chemistry	5	20
CH592	MChem Project and Dissertation	5	60

* CH591 consists of the following modules:

Module Code	Module Title	Level	Credits
CH504	Cage and Cluster Molecules	5	5
CH506	Environmental Chemistry	5	5
CH594	Key Reactions in Organic Chemistry	5	5
CH596	Chemistry in the Excited State	5	5

** CH539 consists of the following modules:

Module Code	Module Title	Level	Credits
CH544	AI and Machine Learning	5	10
CH546	Computational Chemistry	5	10
CH547	Time Series Analysis	5	10
CH548	Software Engineering and High Performance Computing	5	10

Progress

3. In order to progress to the second year of the programme in addition to satisfying the requirements of the General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level, a student must also gain non-compensated passes in the following modules: CH106 Chemistry: Principles and Practice 1, CH107 Chemistry: Principles and Practice 2 and CH108 Practical and Transferable Skills.

4. In order to progress to the third year of the programme, the General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level shall apply.

5. In order to progress to the fourth year of the programme, the General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level shall apply.

6. In order to progress to the fifth year of the programme, the General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level shall apply.

Final Honours Classification

7. The final award will be based on the student's performance in their assessments.

Award

8. **Degree of MChem**: In order to qualify for the degree of MChem in Chemistry with Data Science, see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.)

9. **Degree of BSc with Honours**: In order to qualify for the award of the degree of BSc Hons in Chemistry with Data Science see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

10. **Degree of BSc**: In order to qualify for the award of the degree of BSc in Chemistry see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

11. **Diploma of Higher Education**: see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.)

12. **Certificate of Higher Education:** (see General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.)

Transfer

13. See General Academic Regulations – Undergraduate, Integrated Master and Professional Graduate Degree Programme Level.

14. A student who fails to satisfy the progress or award requirements for the degree of MChem may be transferred to the BSc with Honours of the aligned degree programme.

15. A MChem student who at the end of fourth year fails to satisfy the progress requirements or who does not wish to progress to fifth year may be transferred to the BSc with Honours in Chemistry (Professional Experience).