

BSc (Hons) Chemistry – SC310

1. Mission, Aims and Objectives

Chemistry is considered as the "central" science because it involves all of the other sciences. Chemistry seeks to understand the nature of matter in terms of atoms and molecules and the changes it undergoes.

The mission of the Department of Chemistry is to provide students with the appropriate level of modern and comprehensive chemical education required for life and work in our technologically advanced society. The Department offers a three year full time BSc (Hons) chemistry programme, suitable for a wide range of career goals, both industrial and academic.

The modules offered at undergraduate level emphasise the fundamental principles of chemistry while developing experimental skills. The aims are to train students develop their critical thinking and problem-solving skills to enable them tackle problems in the real world using their chemical knowledge. In an attempt to bring more applied knowledge to this programme, the Department of Chemistry offers a number of electives in polymer chemistry, environmental chemistry, computational chemistry, industrial chemistry, quality control and forensic science.

The Department encourages a variety of research interests in a broad spectrum of the chemical field addressing both pure and applied chemistry aiming at advancing the frontiers of knowledge and solving issues of national importance. It offers MPhil/PhD programmes in these areas and also encourages student involvement in research projects.

The Department also endeavours to promote capacity building in the chemical field and to provide consultancy services as well as to act as an advisory organ to public and private sectors.

2. General Entry Requirements for Admission to the University

As per General Entry Requirements for admission to the University for undergraduate degrees.

3. Programme Requirements

Credit at GCE 'O' level including Mathematics.
Pass at GCE 'A' Level in Chemistry.

4. Programme Duration

| | Normal | Maximum |
|----------------------|---------------|----------------|
| BSc (Hons) Chemistry | 6 Semesters | 10 Semesters |

5. Credit System

15 Hours Lectures and/or Tutorials - 1 Credit.
15 Hours of Practical Work – 0.5 Credit.

6. Credits per Year

Minimum 18 credits; Maximum (including retake modules): 48 credits.

7. Minimum Credits Required for Award

BSc (Hons) Chemistry: 105

Breakdown as follows:

| Degree | Credits from | | | |
|----------------------|---------------------|---------|------------------------|--------------------|
| | Core Taught Modules | Project | Electives ^a | GEMs ^{bc} |
| BSc (Hons) Chemistry | 75 | 9 | 15-21 | 0-6 |

^a For BSc (Hons) Chemistry: at least 15 credits from electives offered by the Chemistry Department with at least 6 credits (two electives) from year 2 and at least 6 credits (two electives) from year 3.

^bGEMs: to be taken normally within years 1 & 2.

8. Assessment

Each module will carry 100 marks (i.e. expressed as %) and will be assessed as follows (unless otherwise specified):

Assessment will be based on a written examination of 3-hour duration for 5/6 credit modules and 2-h for 3 credit modules and on continuous assessment carrying 30% of total marks, except for a programme where the structure makes for other specific provision(s). Continuous assessment may be based on laboratory work, and/or assignments and should include at least 1 class test for 3 credit modules and 2 class tests for 5/6 credit modules.

An overall total of 40% for combined continuous assessment and written examination components would be required to pass a module, without minimum thresholds within the individual continuous assessment and written examination.

CHEM 1051Y(1) and CHEM 2051Y(3) will be assessed solely by continuous assessment.

Modules will carry the weightings of 1, 3 or 5 depending on their status (Introductory, Intermediate or Advanced). Weighting for a particular module is indicated within parentheses in the module code.

9. Important Note

The rules as stipulated in this Programme Structure and Outline Syllabus will replace all other rules and regulations.

10. List of Modules

A. CHEMISTRY CORE MODULES (84 credits)

| Code | Module Name | Hrs L+P | Credits |
|---------------|---|------------|---------|
| CHEM 1011Y(1) | Organic Chemistry I | 75+0 | 5 |
| CHEM 1021Y(1) | Physical Chemistry I | 75+0 | 5 |
| CHEM 1031Y(1) | Inorganic Chemistry I | 75+0 | 5 |
| CHEM 1041Y(1) | Analytical & Environmental Chemistry I | 75+0 | 5 |
| CHEM 1051Y(1) | Practical Chemistry I | 0+150 | 5 |
| CHEM 1061Y(1) | Maths for Chemists | 45+0 | 3 |
| CSE 1010e(1) | Introduction to IT | O.E. | 3 |
| CHEM 2011Y(3) | Organic Chemistry II | 90+0 | 6 |
| CHEM 2021Y(3) | Physical Chemistry II and Polymer Chemistry I | 90+0 | 6 |
| CHEM 2031Y(3) | Inorganic Chemistry II | 90+0 | 6 |
| CHEM 2041Y(3) | Analytical Chemistry II | 45+0 | 3 |
| CHEM 2051Y(3) | Practical Chemistry II | 0+150 | 5 |
| CHEM 3000(5) | Project | - | 9 |
| CHEM 3011Y(5) | Organic Chemistry III | 90+0 | 6 |
| CHEM 3021Y(5) | Physical Chemistry III | 90+0 | 6 |
| CHEM 3031Y(5) | Inorganic Chemistry III | 90+0 | 6 |

B. DEPARTMENTAL ELECTIVES (Not all modules may be on offer)

| | | | |
|---------------|---|---------|---|
| CHEM 2064Y(3) | Topics in Biochemistry | 37.5+15 | 3 |
| CHEM 2065Y(3) | Industrial Chemistry | 37.5+15 | 3 |
| CHEM 2066Y(3) | Computational Chemistry | 37.5+15 | 3 |
| CHEM 2067Y(3) | Environmental Chemistry II | 30+30 | 3 |
| CHEM 2070Y(3) | Forensic Chemistry I | 37.5+15 | 3 |
| CHEM 3064Y(5) | Polymer Chemistry II | 40+10 | 3 |
| CHEM 3065Y(5) | Selected Topics in Environmental and Analytical Chemistry | 40+10 | 3 |
| CHEM 3066Y(5) | Quality Control and Quality Management | 40+10 | 3 |
| CHEM 3067Y(5) | Supramolecular Chemistry | 45+0 | 3 |
| CHEM 3070Y(5) | Forensic Chemistry II | 40+10 | 3 |

and modules offered by any other units/departments.

The Department reserves the right to offer additional electives.

Note: For the award of BSc (Hons) Chemistry, students are required to choose at least 15 credits offered by the Chemistry Department with at least two electives offered in Year 2 and at least two electives offered in Year 3.

11. Programme Plan – BSc (Hons) Chemistry**YEAR 1**

| Code | Module Name | Hrs L+P | Credits |
|---------------|--|--------------------|----------------|
| CORE | | | |
| CHEM 1011Y(1) | Organic Chemistry I | 75+0 | 5 |
| CHEM 1021Y(1) | Physical Chemistry I | 75+0 | 5 |
| CHEM 1031Y(1) | Inorganic Chemistry I | 75+0 | 5 |
| CHEM 1041Y(1) | Analytical & Environmental Chemistry I | 75+0 | 5 |
| CHEM 1051Y(1) | Practical Chemistry I | 0+150 | 5 |
| CHEM 1061Y(1) | Maths for Chemists | 45+0 | 3 |
| CSE 1010e(1) | Introduction to Information Technology | O.E. | 3 |

and/or modules to be chosen from any other units/departments or any new modules offered by the Department.

YEAR 2

| Code | Module Name | Hrs L+P | Credits |
|------------------|---|--------------------|----------------|
| CORE | | | |
| CHEM 2011Y(3) | Organic Chemistry II | 90+0 | 6 |
| CHEM 2021Y(3) | Physical Chemistry II and Polymer Chemistry I | 90+0 | 6 |
| CHEM 2031Y(3) | Inorganic Chemistry II | 90+0 | 6 |
| CHEM 2041Y(3) | Analytical Chemistry II | 45+0 | 3 |
| CHEM 2051Y(3) | Practical Chemistry II | 0+150 | 5 |
| ELECTIVES | | | |
| CHEM 2064Y(3) | Topics in Biochemistry | 37.5+15 | 3 |
| CHEM 2065Y(3) | Industrial Chemistry | 37.5+15 | 3 |
| CHEM 2066Y(3) | Computational Chemistry | 37.5+15 | 3 |
| CHEM 2067Y(3) | Environmental Chemistry II | 30+30 | 3 |
| CHEM 2070Y(3) | Forensic Chemistry 1 | 37.5+15 | 3 |

and/or modules to be chosen from any other units/departments or any new modules offered by the Department.

YEAR 3

| Code | Module Name | Hrs L+P | Credits |
|------------------|---|--------------------|----------------|
| CORE | | | |
| CHEM 3000Y(5) | Project | - | 9 |
| CHEM 3011Y(5) | Organic Chemistry III | 90+0 | 6 |
| CHEM 3021Y(5) | Physical Chemistry III | 90+0 | 6 |
| CHEM 3031Y(5) | Inorganic Chemistry III | 90+0 | 6 |
| ELECTIVES | | | |
| CHEM 3064Y(5) | Polymer Chemistry II | 40+10 | 3 |
| CHEM 3065Y(5) | Selected Topics in Environmental and Analytical Chemistry | 40+10 | 3 |
| CHEM 3066Y(5) | Quality Control and Quality Management | 40+10 | 3 |
| CHEM 3067Y(5) | Supramolecular Chemistry | 45+0 | 3 |
| CHEM 3070Y(5) | Forensic Chemistry II | 40+10 | 3 |

and/or modules to be chosen from any other units/departments or any new modules offered by the Department.

NOTE: NOT ALL ELECTIVES MAY BE ON OFFER.

