1. KentVision Code and title of the module

CHEM6040 – Analytical Chemistry

## Division and School/Department or partner institution which will be responsible for management of the module

Division of Natural Sciences (Chemistry and Forensic Science)

## The level of the module (Level 4, Level 5, Level 6 or Level 7)

Level 6

## The number of credits and the ECTS value which the module represents

15 Credits (7.5 ECTS)

## Which term(s) the module is to be taught in (or other teaching pattern)

Spring

## Prerequisite and co-requisite modules and/or any module restrictions

None

## The course(s) of study to which the module contributes

Optional for the following courses:

BSc (Hons) Chemistry (all variants)

MChem Chemistry

BSc (Hone) Forensic Science (all variants)

MSci Forensic Science

Not available as an elective module

## The intended subject specific learning outcomes. On successfully completing the module students will be able to:

8.1 Demonstrate knowledge and understanding of core and foundation scientific physical, chemical concepts, terminology, theory, units, conventions, and laboratory methods in relation to the chemical and forensic sciences.

8.2 Demonstrate knowledge and understanding of areas of chemistry including analytical chemistry, including as applied to forensic analysis.

8.3 Demonstrate knowledge and understanding of essential facts, concepts, principles and theories relating to analytical chemistry and to apply such knowledge and understanding to the solution of qualitative and quantitative problems.

8.4 Recognise and analyse problems involving analytical chemistry and plan strategies for their solution by the evaluation, interpretation and synthesis of scientific information and data by a variety of computational methods.

8.5 Collate, interpret and explain the significance and underlying theory of experimental data, including an assessment of limits of accuracy.

8.6 Interpret data derived from laboratory observations and measurements in terms of their underlying significance and the theory underpinning them.

## The intended generic learning outcomes. On successfully completing the module students will be able to:

9.1 Demonstrate knowledge and understanding of problem-solving skills, relating to qualitative and quantitative information, extending to situations where evaluations have to be made on the basis of limited information.

9.2 Demonstrate knowledge and understanding of numeracy and computational skills, including such aspects as error analysis, order-of-magnitude estimations, and correct use of units and modes of data presentation.

9.3 Demonstrate time-management and organisational skills, as evidenced by the ability to plan and implement efficient and effective modes of working. Self-management and organisational skills with the capacity to support life-long learning.

9.4 Demonstrate study skills needed for continuing professional development and professional employment.

## A synopsis of the curriculum

In this module you will be introduced to a variety of modern techniques used to understand the structure, properties and potential applications of materials. An illustrative list of potential analytical techniques covered include: atomic emission/absorption spectrometry, high-performance liquid chromatography (HPLC), mass spectrometry and optical microscopy, electron microscopy.

## Reading list

## The University is committed to ensuring that core reading materials are in accessible electronic format in line with the Kent Inclusive Practices.

## The most up to date reading list for each module can be found on the university's [reading list pages](https://kent.rl.talis.com/index.html).

## Contact Hours

Private Study: 128

Contact Hours: 22

Total: 150

## Assessment methods

13.1 Main assessment methods

* Assignment 1 (4 hours) – 12.5%
* Assignment 2 (4 hours) – 12.5%
* Examination (3 hours) – 75%

13.2 Reassessment methods

* Like-for-like

## Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section 12) and methods of assessment (section 13)

**Module learning outcomes against learning and teaching methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 9.1 | 9.2 | 9.3 | 9.4 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| lectures | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  |  |

**Module learning outcomes against assessment methods:**

| **Module learning outcome** | 8.1 | 8.2 | 8.3 | 8.4 | 8.5 | 8.6 | 9.1 | 9.2 | 9.3 | 9.4 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Assignments x 2 | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Examination | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

## Inclusive module design

The Division recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

## Campus(es) or centre(s) where module will be delivered

Canterbury

## Internationalisation

Science is an international discipline with widely applicable international resonance. This module presents subject-specific knowledge generated, developed, and refined by scientists around the world. Mastery of the learning outcomes will equip students to apply the knowledge in a wide range of international contexts and these will be addressed in making the content relevant to current global issues. The Division of Natural Sciences is an international community of students and staff and group activities and teaching will provide a platform for internationally-focussed discussion.

**DIVISIONAL USE ONLY**

**Module record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

| Date approved | New/Major/minor revision | Start date of delivery of (revised) version | Section revised  (if applicable) | Impacts PLOs (Q6&7 cover sheet) |
| --- | --- | --- | --- | --- |
| 9 Dec 2021 | Minor | Sept 2022 | 5-6, 10, 12 | No |
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| Revised FSO Jan 2018 |